CULTURAL ENTROPY: A GROUNDED THEORY STUDY OF
EARLY CHILDHOOD EXPERIENCES IN NATURE IN THE
ARROYO GRANDE CREEK WATERSHED

by

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ABSTRACT


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Through a grounded theory methodology data collection around early childhood experiences with nature leading towards positive civic engagement with the community, the theory of cultural entropy emerged along with a policy recommendation for reconnecting the community to the local watershed.

Through qualitative interviews with lifelong residents and analysis of essays from local high school students comparing early experiences with nature, the theory of cultural entropy emerged to explain how perceptions and interactions with the local landscape changed across generations. With the help of key informant interviews, archival research, and exploration of the local watershed, cultural entropy was used to theorize how the work culture should do towards protecting and passing along ecological, cultural, and historical knowledge that might help increase civic engagement.

Lifelong residents participating in the research were found to have high levels of civic engagement through participation with the local historical society and/or
recommendations from people because of their involvement with the community. More than any other theme, the importance of the Arroyo Grande Creek emerged as a significant early experience in nature amongst all lifelong residents. In contrast, this experience was completely gone from the early experiences by the high school students participating in this study. Creation of the dam, channelization of the creek, and invasive species introduction have almost eliminated access to the creek. Very little evidence was found along the entire stretch of creek from dam to ocean of kids playing in the creek. This is theorized to be a product of larger cultures from outside this local ecosystem diffusing into the local culture, creating disconnect from local ecosystem knowledge.

A policy recommendation is to create an interpretive greenbelt system along an already existing dirt farm road controlled by local agricultural land, promoting community engagement with the local watershed. Because so much of the key ecological, historical, and cultural knowledge of the area centers around the watershed, it is hypothesized that a greenbelt system has potential for reversing cultural entropy, increasing ecological, historical, and cultural knowledge of the area, and promoting civic engagement.
PUBLIC ABSTRACT


Nathaniel Miles Millard

Through support from a Quinney Fellowship and the Institute of Outdoor Recreation and Tourism in the Department of Environment and Society at Utah State University, the theory of cultural entropy emerged as an explanation for changing behavior across generations of people living in the Arroyo Grande Creek watershed. Through a trirounded theory methodology data collection around early childhood experiences with nature leading towards positive civic engagement with the community, the theory of cultural entropy emerged along with a policy recommendation for reconnecting the community to the local watershed.

Lifelong residents participating in the research were found to have high levels of civic engagement through participation with the local historical society and/or recommendations from people because of their involvement with the community. More than any other theme, the importance of the Arroyo Grande Creek emerged as a significant early experience in nature amongst all lifelong residents. In contrast, this experience was completely gone from the early experiences by the high school students participating in this study. Creation of the dam, channelization of the creek, and invasive species introduction have almost eliminated access to the creek. Very little evidence was found along the entire stretch of creek from dam to ocean of kids playing in the creek.
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I did not realize the dissertation would end up not being a research project so much as an expedition and trial by fire, or better yet, trial by long hours of sitting and typing.

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CHAPTER I
INTRODUCTION

Purpose

The purpose of this dissertation research is to build theory based on language, nature, and culture in order to better understand how a community can become more sustainable by including ecosystem knowledge, historical and archival data, resource management, and cultural knowledge into the planning process. Implementing grounded theory methodology (Charmaz, 2006; Corbin & Strauss, 2008; Glaser & Strauss, 1967), key informant interviews were conducted with various different generations of people living in southern San Luis Obispo County (Figure 1.1), along with archival research and personal interviews with local experts. Data generated were coded for emerging themes. Questions focused around significant childhood experience leading towards important ecological, historical, and cultural knowledge along with positive civic engagement.

Two major concepts emerged from the research. First, upon trying to understand how culture change was connected to landscape use change, the theory of cultural entropy emerged. The theory hypothesizes that larger cultures from outside specific geographic boundaries move into smaller areas affecting regional landscape change and diminishing local ecological, historical, and cultural knowledge. Because of this, the work culture does towards preserving local knowledge and sustaining livelihood is diminished.
The second concept is a planning recommendation to affect change and reverse the effects of cultural entropy by creating a greenbelt system along the local watershed. While greenbelts have already been proven to increase home prices (Asabere & Huffman, 2009), they have also been shown to raise environmental awareness and sense of place in an area (Gocove & Pathberiya, 2013). The current watershed, the Arroyo Grande Creek (Figure 1.2), has significant ecological, historical, and cultural importance to the area; it is however neglected and forgotten by current residents. A greenbelt reintroduces the local ecology, and, with proper interpretive installments, can inform about cultural and historical uses of the watershed to the surrounding ecosystem and community. Reconnecting people to the local environment and economy while creating a shared community resource might shift attitudes and behaviors towards civic engagement.
Introduction

Discovery commences with the awareness of anomaly, i.e., with the recognition that nature has somehow violated the paradigm-induced expectations that govern normal science. It then continues with a more or less extended exploration of the area of anomaly. And it closes only when the paradigm theory has been adjusted so that the anomalous has become the expected. Assimilating a new sort of fact demands a more than additive adjustment of theory, and until that adjustment is completed—until the scientist has learned to see nature in a different way—the new fact is not quite a scientific fact at all. (Kuhn, 1996, pp. 52-53)

From the ancient Greek philosophers, early religions, and up to modern science, humans have always been struggling to understand the interconnectedness of life on
earth. In 1935, Arthur Roy Clapham coined the term “ecosystem,” at the request of Arthur Tansley, to describe biotic-biotic and biotic-abiotic relationships as a unit. Although it was another couple of decades until the Odum brothers published a textbook on ecology focused on general systems theory in 1953, the term ecosystem is now widely accepted (Willis, 1997).

Nonetheless, human knowledge of ecosystem and ecological literacy is not the driving force for human decisions and behaviors (Barbas & Zikopoulos, 2007; Costa, 2008; Dietz, Stern, & Guagnano, 1998; Mead, 1934; Pfeifer, Iacoboni, Mazziotta, & Dapretto, 2008). Science is unequivocally stating humans are degrading ecosystems at alarming rates and yet human behavior is slow to change (L. Brown, 2008; "Intergovernmental Panel on Climate Change," 2007). How and what humans value is part of the decision-making process and value is embedded in the cultures in which humans live (Daniel, 1988; Dietz, Kalof, & Stern, 2002; Kellert, 1993; Raymond & Brown, 2007; Stern & Dietz, 1994; Stern, Dietz, & Kalof, 1993; Stern, Dietz, Kalof, & Guagnano, 1995; Tuan, 1974; Vining & Typer, 1999).

Paradigm shift does not happen quickly. It took over 200 years for human culture to generally accept a heliocentric solar system. Galileo was locked down on house arrest for the remainder of his life for publishing ideas he observed through scientific inquiry because they went against the dominant culture of the time, although many people generally accepted his evidence (Kuhn, 1996). The dominant culture, mostly influenced by Christian religion, did not accept the evidence.

Now another concept is gaining traction in the dominant culture in the United States and the world. Sustainability is not a new word, or new idea. It means to look at
human values alongside ecological knowledge in order to maintain a quality of life on
earth for the present and future generations (Edwards, 2005).

The use of words within communities of people represent the values embedded in
that culture. For much of human history, language was restricted by geographic
boundaries. One of the ways human migration is understood is through the movement of
language and words into other cultures. Most often this convergence happens alongside
the transference of tools and technology (Klar & Jones, 2005).

Culture evolves along with humans to help human survival. Kroeber defines four
methods of cultural diffusion: expansion, relocation, hierarchical, and contagious
(Kroeber, 1940). The research on the diffusion of innovation is very robust (Rogers,
2003), it is not without criticism (Damanpour, 1996). Language shifts alongside cultural
diffusion. Many of the ancient languages that came directly from geographic isolation are
being lost as larger cultures expand into them (Harrison, 2007). A lot of this happens as
the new tools of one culture get introduced to another. The past language, tools, and
knowledge are lost as the new culture and language take over.

By interviewing and surveying different generations of people living in a
geographic area, and by doing archival work, different uses of language and tools became
evident to assist in understanding how culture had already changed for the town of
Arroyo Grande and the surrounding ecosystems.

**Study Area**

Arroyo Grande is a small town on the central coast of California in South San
Luis Obispo County. Although the exact date of human habitation is unknown, the
Chumash language, grouped with Waikuri and Yukian languages, is thought to be one of the earliest languages in California, predating the Hokan languages (Golla, 2011). Some have suggested the ancestors to the Chumash migrated before the Bering Land Bridge was open for migration by travelling the coast along a kelp highway (Erlandson et al., 2007). The earliest dated Chumash artifacts in the Arroyo Grande watershed dates to about 2,000 years ago. There is evidence of human habitation nearby over 12,000 years ago. With the influx of Spanish missions, most of the Chumash culture eroded away, and the last native speaker died in 1965. The first European explorers landed on the coast in 1602. Father Junipero Serra founded the Spanish Mission San Luis Obispo de Tolosa in 1792. In 1833 the Spanish government closed the mission period and opened the land to grants for settlers. In 1837, Francis Ziba Branch (Figure 1.3), a fur trapper originally from New York, was awarded the Rancho Santa Manuela land grant, part of which would eventually become Arroyo Grande, CA (Hubbard & Hoving, 2009).

Arroyo Grande, after California became part of the United States, became a township in 1862 and was incorporated on July 10th, 1911. While the city of Arroyo Grande has a population of 17,000, Arroyo Grande watershed is really made up of what is called the Five-Cities Area. It contains three incorporated cities, Pismo Beach, Arroyo Grande, and Grover Beach, and two unincorporated cities, Oceano and Shell Beach. The total population of the Five-Cities area is roughly 50,000 with many people living in the surrounding lands within the southern parts of San Luis Obispo County. In the 2010 census, 76.9% reported white, not Hispanic, 15.7% Hispanic or Latino, 4.6% were two or more races, and 3.4% Asian (U.S. Census Bureau, 2012).
Figure 1.3. Francis Ziba Branch was born in Scipio, New York, July 24, 1802. He was a fur trapper across the west and was the first American settler in the Arroyo Grande Valley (Hubbard & Hoving, 2009).

Climate is Mediterranean with warm dry summers and wet winters averaging 19 inches of rainfall a year. The Arroyo Grande Creek watershed is roughly 107 square miles of watershed starting in the Los Padres National Forest up in the Santa Lucia Mountains (R. Brown, 2002). The Arroyo Grande Creek runs from the Los Padres Mountains, through the Arroyo Grande Valley, in what would have been historically a monte, a bog like area of willow and sycamore, and out into dune lakes. During heavy rain in the winter months, the creek would break through the dunes to reach the Pacific Ocean. The entire area falls within the Mediterranean forest, woodlands, and shrub biomes, and contains the California chaparral, coastal sage dune complexes, and alluvial
valleys. Surface geology is made up mostly of Cenozoic marine sedimentary rock (Bailey, 1998).

While the creek historically contained steelhead trout, with the building of Lopez Lake dam, the water flow is controlled now for maximization of agricultural wells and the water does not consistently reach the oceans (R. Brown, 2002). The creek is channelized and bermed along the valley to reduce flooding and maximize use for agricultural lands with many large water pumps along the creek prior to the creek reaching the ocean. Some of the original dune lakes have been drained to create more agriculture lands however a few remain.

Arroyo Grande has always been along a trade route. First, the native Chumash were known for their beads that were used as a form of money. Being along the Pacific Ocean, the Spanish were quick to discover the beach and eventually send missionaries there. El Camino Real was first the Spanish route along the coast that ran through the town, and eventually becoming a wagon route. The narrow gauge Pacific Coast Railway went through Arroyo Grande heading to the Port San Harford in Pismo Beach where a horse-powered tramway would carry people to Port San Luis where ships could dock and people could catch the Pacific Coast Steamship Company transportation service. Eventually, the Union Pacific Railway came in, and after that, with the rise of automobiles, U.S. Route 101 and Coast Route 1 (Ditmas, 2000).

Arroyo Grande has consistently been along a major migration route of people and commodities keeping it connected to larger cultures around the world.
Problems

[T]he publisher of the Oxford Junior Dictionary has sent words like "beaver" and "dandelion" the way of the dodo bird. In the latest version of its dictionary for schoolchildren, Oxford University Press has cut nature terms such as heron, magpie, otter, acorn, clover, ivy, sycamore, willow and blackberry. In their place, the university publishing house has substituted more modern terms, like the electronic Blackberry, blog, MP3 player, voicemail and broadband. [...] Vineeta Gupta, who heads children's dictionaries at Oxford University Press, said changes in the world are responsible for changes in the book. [...] "When you look back at older versions of dictionaries, there were lots of examples of flowers for instance. That was because many children lived in semi-rural environments and saw the seasons. Nowadays, the environment has changed," she said. (Wingrove, 2008)

Children

Biophilia is defined by Harvard biologist E.O. Wilson as the “innately emotional affiliation of human beings to other living organisms” (Kellert & Wilson, 1993, p. 31).

Richard Louv’s book (2005), Last Child in the Woods: Saving our Children from Nature-Deficit Disorder, helped spark a national movement to reconnect kids outside. Along with Louv’s testimony to Congress and an attempt to pass the No Child Left Inside Act of 2007 (Louv, 2007b), there is a rise in the importance of research around children and nature connections focusing on Attention-Deficit/Hyperactivity Disorder (Kuo & Faber Taylor, 2004) and the effects of early experiences in nature leading towards environmental activism (Gough, 1999). Louv estimates about 6% of kids play outside on their own. Even the Forest Service has turned their focus to trying to get kids outside more (Kimbell, 2007). From a civic engagement standpoint, how will kids grow up to make wise decisions about local resource management without local ecological knowledge?
Environment

The news and research is filled with negative stories about the degradation of resources. A January 2009 article of *Science, Widespread Increase of Tree Mortality in the Western United States*, presents yet another negative feedback loop caused by global climate change. Forest mortality rates are increasing. As “key regulators of global hydrologic and carbon cycles,” forests now might release more carbon than they capture (C. White, Bailey, & Pain, 1999). The scientists involved suggest that “regional warming,” and therefore drought stress, is the main reason for the increase in mortality rates. This is only one of the many negative feedback loops coming to light as more science on climate change is conducted.

Another similar loop with compounding consequences is that of the melting ice sheets and polar ice caps. As the white ice sheets, which reflect the sun’s energy back out to space, continue to melt, the dark ocean water remaining absorbs more heat. The ocean warms more and the ice continues to recede. Desertification, decline in water quality and quantity, rising seas, melting ice, global warming, drought, species extinction, and loss of forest are all rapidly becoming recognized as a threat to humanity (L. Brown, 2008; Intergovernmental Panel on Climate Change, 2007; Rischard, 2002). If the ocean rises just a few feet, it will displace millions of people. Mercury levels in fish have reached such a level that subsistence off the ocean is too toxic. As Kuhn put it, we are on the edge of seeing “nature in a different way” (Kuhn, 1996, p. 53).
**Summary of Problem**

There are two very distinct problems. First there is the problem with environmental degradation. This research is prolific. There are problems of species extinction, climate change, over-population, water scarcity, pollution, desertification, and much more. The key here is that these are mostly human-created problems and ones that we will need to understand better and change. The second problem is the disconnection humans have with nature. Nature, and the knowledge of ecosystems and how they are key to human survival, is not in the current culture. These two problems together have the potential for multiplying because if we have a generation of people who not only do not understand how ecological systems work, but do not care, then solving those problems will become much more difficult. Certainly a culture intimately connected to the local ecosystem would see the changes happening around them and the culture would adapt to mitigate those changes. And perhaps human culture is evolving towards a new paradigm of sustainability, but will it move fast enough? If we understood how culture evolves, could we find ways to evolve culture faster? If we have a culture of people, whole communities coming up without knowledge of how ecosystems work, will they be able to make policy decisions to prevent ecosystem disasters? Can we create a community-wide educational outreach to raise local ecological, historical, and cultural knowledge in order to engage citizens towards sustaining their community?
CHAPTER II
LITERATURE REVIEW

Introduction to Literature Review

Although initial questions were formulated, in grounded theory methodology (GTM) it is better to synthesize related theories and other literature that came out of the GTM process in the discussions section of a GTM research article (Creswell, 2003). The researcher should approach the data with as open a mind as possible to see what concepts emerge (Charmaz, 2006; Glaser & Strauss, 1967; Strauss & Corbin, 1990; Urquhart, 2012).

Although GTM is a very inductive process, the role of the literature review is to prepare the researcher for interviews, to provide guidelines and broad areas of interests from which to ask questions; however, it is up to the researcher to be listening and “developing, rather than limiting their ideas” during this process (Charmaz, 2004, p. 501).

Culture

The root of the world culture comes from Middle English and translates as “the place tilled” (Culture, 1989). One of the earliest uses of the word was in 1871 when Tylor defined culture as “that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society” (p. 1). In biology, culture is a verb and means to grow something in a defined medium (Culture, 1989). We most commonly think of culture as some collective
knowledge a group shares in common. Culture is the arts, religion, beliefs, rituals, history, language, and customs of a community. However, culture is also grounded in geographic locations. We understand cultures quite often through their language and the geographic isolation of that language (Basso, 1996; Golla, 2011; Harrison, 2007). Geological and ecological boundaries quite often separate cultures or define the boundaries between cultures. This is seen through difference in tool use and language use. Rivers, deserts, and mountain ranges separated cultures and kept humans from migrating. These ecological boundaries kept one human culture from sharing with another human culture. Language and the tools invented by that culture were not traded. When trade routes were established, tools and languages diffused along those trade routes. When tools were trades, the names for the tool were traded too, or close proximities to the original. This influx of words into cultures can be seen. There is linguistic and technological evidence to suggest Polynesian cultural exchange happened eventually because of the sewn plank canoe the Chumash called the tomol (Klar & Jones, 2005). Tomol is not linguistically connected through sounds to anything normally seen in Chumash language; however, is morphologically connected to Polynesian languages. Most languages can be traced back to shared common languages. Often new words, specifically around new inventions, such as computer, are seen entering into languages with similar morphological structures, even without any common linguistic lineage. When we see sharp delineations between languages over short geographic space, it is usually a result of cultural boundaries such as political lines, walls, or other agreed upon boundaries. Language has a history evolved alongside culture and connected to human migration.
Language and Thought

Some day the attempt to master a primitive culture without the help of the language of its society will seem as amateurish as the labors of a historian who cannot handle the original documents of the civilization that he is describing. Language is a guide to ‘social reality’. Though language is not ordinarily thought of as of essential interest to the students of social science, it powerfully conditions all our thinking about social problems and processes. (Sapir, 1929, p. 209)

The origin of language is a contested field of study. There are dozens of theories around the origin of language and why it evolved to the current level of complexity (Tallerman & Gibson, 2012). Wilhelm von Humboldt, older brother to naturalist and explorer Alexander von Humboldt, posthumously published an article proclaiming that sounds of speech did not have meaning until a community of users agreed upon the meaning (Lucy, 1997).

Linguistic relativity, sometimes called Sapir-Worf Hypothesis, or sometimes Worfian Hypothesis, because Sapir and Worf never actually wrote anything together, comes out of the Humboldt tradition who saw language as intricately connected to nations of people. Edward Sapir was a student of anthropologist Franz Boas. Sapir once wrote that “human beings do not live in the objective world alone, not alone in the world of social activity as ordinarily understood, but are very much at the mercy of the particular language which has become the medium of expression for their society” (Sapir, 1929, p. 209). Culture cannot be separated from the language that culture speaks. The theory has been taken as far as to suggest language shapes thoughts, a type of linguistic determination.
Although linguistic determination has been criticized, recent research shows geographical boundaries do in fact shape language (Lupyan & Dale, 2010). In a statistical analysis of over 2,000 languages, researchers found “strong evidence for a relationship between social structure and linguistic structure” (p. 7). Researchers hypothesize a linguistic niche idea similar to the idea of language entropy (Campbell, 1982). Researchers found languages with more speakers and spread out over larger and more diverse geographical areas tended to be simpler in morphology and made easier to learn for adult outsiders (Lupyan & Dale, 2010).

Linguistic determination is mostly criticized for stating there is a tight connection between thought and language, and a loose connection between thought and the world. Cognitive science sees a more direct and tight connection between the world and thought, and the loose connection between language and thought (Wolff & Holmes, 2011).

**Language and Nature**

Educational theorist John Dewey once called language the “tool of tools” (1998, p. 51). Hans-Georg Gadamer, a hermeneutic theorist says language exists only in the “with-one-another” dialogic of conversation (Gadamer, 2000b, p. 22). Both Gadamer and Dewey hypothesize how tool use, first with language and then other tools, need a community of users for the tool to exist (Dewey, 1998; Gadamer, 2000a,b). Community and communication are intricately connected. Communication allows people to work together in more complex ways of cooperation; it allows oral traditions, histories, religions, shared cultural knowledge, societal agreements, ecosystem knowledge,
resource management, and a cognitive map of the world to be passed and shared amongst users.

The act of using language is an active process of experience. Language is filled with dying metaphors (Lakoff & Johnson, 2003). Metaphors are transference of meaning from one thing to another. This requires experience with one side of the metaphoric transfer. Language is dynamic and complex, but our current society makes interpretive assumptions in language without acknowledging meaning. Significance given a tool requires social and linguistic agreement. For one person to recognize the metaphoric potential in a tool, they must have experience with one part of the transfer in meaning. A tool cannot be recognized as such until people agree upon the “end-in-view” of the tool’s use (Schmidt, 2000, p. 131).

The reader-response perspective of analyzing texts looks at both denotative and connotative meanings in words and symbols (Murfin & Ray, 2003). In the natural world there are finite denotative meanings to words, albeit more than we yet know. These are the literal, categorical, scientific, and descriptive meanings of actual concrete objects. Connotative meanings are limitless and rely on shared experiences amongst language users. Connotative, non-literal meaning is much more complex and less understood (Colston & Katz, 2005).

Any language act is also a type of rhetorical argument. While it is easy to understand how a text, story, advertisement, or speech contains aspects of a culture, landscapes, and the modification made to these, are also part of a culture. In Geography, there is a sub-discipline called Landscape-as-Text (Daniels & Cosgrove, 1993). Ecology and Anthropology both study the ways human culture has affected and affects landscape
change. Native American use of fire is one of these areas where landscape change and cultural practices intersect (Denevan, 1992, 2011; Pyne, 1997). It has been argued that our use of fire, and part of our desire to alter landscape, is a biological response to wanting prospect and refuge (Appleton, 1984; Clamp & Powell, 1982; Hudson, 1992; Nasar, Julian, Buchman, Humphreys, & Mrohaly, 1983; Petherick, 2000). Humans shape landscapes through the use of fire. Studies of tree forms have shown, across the globe, humans prefer open-grown, acacia-type tree forms (Sommer, 1997; Sommer & Summit, 1995, 1996; Summit & Sommer, 1999). These studies suggest we prefer these tree forms because they provide ease of climbing and good views from which to see threats coming. This is both a biological response from the past and a cultural response with passed down values. Human response to landscape has both cultural and biological histories.

**Memes and Cultural Evolution**

Memes, from the Latin for imitation, is defined by Dawkins (1989) as the “soup of human culture” (p. 192). Memes are the storehouse of human culture. They are a unit of cultural memory. As Polan (2002) explain, memes can be “as small as a tune or a metaphor, as big as a philosophy or religious concept” (p. 148). Dawkins proposed the idea to suggest that memes evolve in culture, or even are the agents of the evolution of culture, in the same way that genes are modifiers in biological evolution. Loyal Rue suggests memes, and our ability to transmit memes, mostly through language, allows humans to bypass biological evolution through cultural evolution (Rue, 2005). While there is criticism about the reality of memes (Atran, 2001), memes have great potential for explaining cultural evolution (Gers, 2008). A meme, for the most part, is anything that
can be replicated or imitated and passed down to other people. By this definition, language is a tool developed for the transference of memes. Meme creation and selection by a culture is incredibly difficult to predict how it will evolve with culture. Research in this area looks at virtual worlds in order to understand vertical and horizontal meme transference (Pan et al., 2010).

**Morals and Behavior**

Memes are ways to pass ecosystem knowledge, history, resource management, and cultural knowledge. Memes inform community members of a culture how to behave, what to value, and why. Modern ideas on morality come from Jean Piaget’s qualitative work with kids and moral development in this book *The Moral Judgment of the Child* (1965). Kohlberg (1981) followed this work with a study on moral judgment where he theorized three levels of moral development. He believed moral responsibility went from egocentric to one of higher moral principle and that growth moved from isolated individuals to societal norms, and eventually to universal moral reasoning. Most research states that moral development comes at very early ages (Fesmire, 2003; Johnson, 1993; Narvaez & Gleason, 2007).

The development of environmental beliefs also develops at very early ages (Ewert, Place, & Sibthorp, 2005). Chawla (1998, 1999, 2006a,b), using what is called a Significant Life Experience (SLE) test, has continuously found that early experiences shape environmental activism. Early experiences outdoors has been shown to have the largest impact on environmental attitudes (Gurevitz, 2000). Some data suggest paradigms cannot be adequately shifted towards positive environmental behavior after a certain age.
(Haluza-Delay, 2001; Newhouse, 1990). SLE research finds that early childhood experiences are the significant reason people go into careers dealing with the environment (Gough, 1999; Van Velsor & Nilon, 2006).

**NEP and Attitudes**

The New Ecological Paradigm (NEP), first known as the New Environmental Paradigm (Dunlap & Van Liere, 1978), was revised in 2000 to take into consideration a changing knowledge of the population and “avoid outmoded terminology” (Dunlap, Van Liere, Mertig, & Jones, 2000). The original NEP scale came about in 1978 to challenge the Dominant Social Paradigm (DSP) of the time that favored a “society that uses its resources to benefit the present generation” (Ewert et al., 2005). The dominant paradigm of that time believed science could solve all environmental problems through technology and invention (Ewert et al., 2005). The authors’ of the 1978 NEP saw the emerging environmental paradigm as challenging the DSP because they no longer saw the earth solely as anthropocentric. This “new paradigm” was adapting an eco-centric view of the world (Dunlap & Van Liere, 1978). And while the idea of intrinsic value found in nature was not entirely new, the new paradigm had grown enough in popularity to be challenging the old paradigm.

Many of the studies show that the NEP has the ability to show if a person has pro-environmental attitudes (Dietz, Stern, & Guagnano, 1995; Dunlap et al., 2000; Ewert et al., 2005; Stern et al., 1995). Having a pro-environmental attitude is similar to seeing a certain paradigm, but does not necessarily constitute any pro-environmental behavior (Jose-Antonio, Jaime, & Rocio, 2007). People can believe in many things, but not act
accordingly. One of the major limitations to the NEP is the ability to tell if attitudes relate to behavior. Because of this, it is suggested to include behavioral questions (Kaiser, Oerke, & Bogner, 2007).

The NEP is helpful when used alongside other measurements to get statistical data and variables to analyze possible factors for different environmental beliefs (Dietz et al., 1995; Dunlap et al., 2000; Ewert et al., 2005; Jose-Antonio et al., 2007; Lalonde & Jackson, 2002; Manoli, Johnson, & Dunlap, 2007).

Emerging Adulthood and Identity

Emerging adulthood is the current term suggested for use for the period of life between 18-25 (Arnett, 2007). The idea that there is a transitional period, or liminal period in life, was first suggested by the work from Arnold van Gennep in his 1908 French book, *Les Rites de Passage*, translated in 1960. In this book, he looks at the transitional period of life in different cultures. He breaks down rites of passage into three sections: “rites of separation from a previous world, *preliminal rites*, those executed during the transitional stage, *liminal (or threshold) rites*, and the ceremonies of incorporation into the new world *post-liminal rites*” (van Gennep, 1960, p. 21). Most cultures have rites of passages where a person transitions from one life stage to the next. One of those passages is from childhood into adulthood. From fasting, bar mitzvahs, and quinceaneras, many cultures have a ritual around this transition into an adult member of that culture.

Victor Turner, in his seminal work *The Ritual Process* (1969), explained van Gennep’s theory of rites of passage further by dividing every rite of passage into three
phases: “separation, margin (or limin, signifying ‘threshold’ in Latin), and aggregation” (p. 94). Some people have pointed out that within the United States, there are limited rites of passages that truly demarcate adulthood for children (Bell, 2003). Nonetheless, most of the rites of passage ritual has to do with identity.

Emerging Adulthood is a term coined by developmental psychologist Jeffery Arnett. He states that the “timing and meaning of coming of age—that is, reaching full adult status—is different today than it was 50 or 100 years ago” (Arnett & Tanner, 2006, p. 4). Arnett shows that emerging adulthood is a period of life where you are betwixt and between, a term from van Gennep, adolescence and adulthood. Rather than use the term “young adult,” he suggests the term emerging adulthood. He says that this is a period in life in which to explore identity during this prolonged adolescence phase, something noted by Erik Erikson when looking at industrialized societies and the exploration of identity. Arnett notes that this period of life is time to understand identity issues “expected to arise in response to questions about love, work, and ideology or worldviews” (p. 8). Arnett breaks down the period of emerging adulthood into five ages: Identity exploration, instability, self-focus, feeling in-between (liminality), and possibilities (pp. 8-14). Coming out through the rite of passage and into adulthood the emerging adult will have a better understanding of their identity, and the way they will move, act, and behave as an engaged-citizen in the world.

Because identity is known to be a malleable and a social construction of experience and culture, it is important to understand because many of the participants included in my surveys were at the beginning phase of emerging adulthood, and therefore starting a major phase of identity exploration. Schwartz, Zamboanga, Luyckx, Meca, and
Communities of Practice

Communities of Practice theory (COP) is a pedagogical theory in which learning, rather than a cognitive process, is a social process (Lave & Wenger, 1991). This theory, first defined by Lave and Wenger as legitimate peripheral participation, is the idea that “learners inevitably participate in communities of practitioners and that the mastery of knowledge and skill requires newcomers to move toward full participation in the sociocultural practices of a community” (p. 29). Practice in a community (social practice) leads towards learning. However, COP theory is not just about the practices of social communities, it is also about “constructing identities in relation to these communities” (Wenger, 1998, p. 4). Identity is a key factor in COP theory because group membership within different communities of practice contextualizes membership and creates narratives that carry over into other aspects of life and other COPs.

Part of the belonging to a COP has to do with shared repertoires within communities. First, communities do not exist alone or separated. They act like Koestler’s concept of holons. It is both individualistic while also being part of something larger. There are “larger contexts—historical, social, cultural, institutional” within which COPs form (Wenger, 1998, p. 79). In this way, I see connections between Dawkin’s ideas of meme as agents of cultural evolution, and Lave and Wenger’s theory of learning. Memes not only dictate group membership, help facilitate rules of participation, but they also are created within groups. Groups function to add connotative meanings to words. Not only
can memes constrain a group to social norms, another type of meme, but the group, with a purpose of creation and invention towards solving problems—the legitimate work of many groups—can develop new memes which might then leave smaller COPs and reach out into other aspects of lives. I would argue the invention of memes, the spark of cultural evolution, happens with the work of COPs. We will come back to this during the discussion of the data.

**Connections to Nature**

Object recognition, concept formation, emotional experience, anticipation, planning, problem-solving, comparing and contrasting, decision-making, language use—none of these abilities would be possible apart from the neural systems that generate memory objects as the raw data of mental activity. (Rue, 2005, p. 39)

The research around human biologic connections to nature has important implications towards behavior. Savanna hypothesis (Appleton, 1984; Clamp & Powell, 1982; Hartmann & Apaolaza-Ibáñez, 2010; Hudson, 1992; Nasar et al., 1983), biophilia (Kellert, 1993; Kellert & Wilson, 1993), and Attention Restoration Theory (Berman, Jonides, & Kaplan, 2008; Berto, 2007; Kaplan, 1995) all help explain parts of human behavior towards landscape and help provide some insight towards changing behavior.

Prior to humans using agriculture, prior to using tools, prior to our enlarged brain size, humans learned to walk upright. Lovejoy has suggested that “provisioning by the male” provided the impetus for bipedalism (1988). Males needed to carry food back to where their mate and their offspring waited in hunger. The recent discovery of Ardi (*Ardipithecus ramidus*), the earliest bipedal link to humans, suggests not only did they walk upright, but also they were much more socially oriented than previous hominids.
This is suggested from the reduction of canine teeth in male, suggesting less male-to-male conflicts and more cooperation (Cerling et al., 2010; Suwa et al., 2009; T. White et al., 2009). And though Ardi walked upright, his teeth, hips, and other skeletal attributes suggest that he lived mostly in trees, but spent partial time on the ground (Lovejoy, Simpson, White, Asfaw, & Suwa, 2009). They walked because they wanted to carry food for their families.

Terrestrial life was dangerous for the first walkers. Two things provided safety: numbers of friends and those willing to help, and the tree from which they came down. Clambering up into trees is an instinctual reaction to fear, a primary emotion. Trees, and not just any trees, but open-grown trees, are hard-wired into our brains as a place for safety (Sommer & Summit, 1996). It is raw and instinctual to seek higher ground, to climb a tree or any other tall object when threatened by a bear or large cat. In a relatively short amount of time (1-2 million years after Ardi), *Australopithecus* arrives in the archeological record. It is “a committed biped with slightly enlarged brain, a nongrasping arched foot, further derived canines, substantially specialized postcanine teeth with thick molar enamel, and expanded ecological tolerances and geographic ranges” (T. White et al., 2009, p. 85). From *Australopithecus* comes *Homo* and with *Homo* came the encroaching savannas and an increasing arid climate, and with that came tool use, communication, and the social brain. White has described evolution as a car assembly line; “Bipedality is the frame. Technology is the body. Language is the engine, dropped in toward the end of the assembly; iPhones are the hood ornaments” (Shreeve, 2010, p. 60). Without trees, we rely on each other for safety, for food, for reproductive fitness. Our social brain has allowed us to overcome the primary emotions of fear, anger,
and desire. A lot of this comes through language, storytelling, and the creation of morals and religions.

As Loyal Rue described, when our ancestors moved down from the tree they encountered new environmental conditions and challenges; this was a “determining factor in the evolution of neural systems. New environmental circumstances selected for abilities to process new forms of information” (Rue, 2005, p. 32). Our brains constantly take in environmental clues through the senses and the brain sends out a response to those conditions. To have a reflexive response to all environmental conditions would be impossible; instead, our brains have the ability to learn, and “memories are the artifacts of learning” (p. 38).

Life for Ardi was about fulfilling the basic emotions of fear and pleasure. Memories would have been created that saw open spaces as vulnerable places and places to fear, the same might have been true for very dense cover without the ability to see. Ardi was not faster than the cats hunting him. A mate would have brought pleasure and the longing for that mate might have developed a sense of “conjugal and maternal bonding” (p. 43). Those early humans that were able to get along with others would have survived and emotional systems that helped a person with cooperating with others would have been selected for. Those who did not get along perished and their reproductive fitness greatly declined.

Language grew complex alongside these new emotional responses to the world. Ardi probably had a difficult time containing his fear. His hair bristled, his breathing increased, his eyes might have widened. As early hominids worked in groups, they needed to control fear, to deceive others. Ardi needed to learn to hide his emotions, but
also to recognize when others were lying too. He needed to perceive who and what he could trust in this world. He read clues from his environment and stored them in working memory for the next time. He learned from experience; he stored these, and eventually learned to pass this valuable information on to others through symbolic communication. Brains that could do this the best lived, migrated, and reproduced.

Along with this advance communication system is the ability to conjure up the poetic image, the ability to imagine future possibilities, to plan, to anticipate, and manipulate. The past is carried into the present; the future is dreamed up from experience. Rue argues this is the oral tradition where religion comes from. With this ability to carry the past in stories and language came the ability to put value onto certain objects, certain experiences, and certain memories. All of it hinges on our ability to store an image, an idea, in the working memory. And somewhere in the deepest part of the human brain, the open-grown tree remains as perhaps the first image and memory; it is a symbol of security. The tree is our first home; it provides what Appleton called “prospect and refuge” (1975, p. 73).

**Prospect and Refuge**

[A]t both human and sub-human level the ability to see and the ability to hide are both important in calculating a creature's survival prospects[…] Where he has an unimpeded opportunity to see we can call it a *prospect.* Where he has an opportunity to hide, a *refuge.* (Appleton, 1975, p. 73)

Prospect and refuge, a theory used by architects like Frank Lloyd Wright in designing built environments, is the idea that at a biological level people seek out areas of prospect, or long views, and refuge, or areas of seclusion. A tree is perhaps one of the ultimate places for prospect and refuge. In testing the theory, many have found prospect
over-rides refuge when it comes to feelings of fear (Clamp & Powell, 1982; Hudson, 1992; Nasar et al., 1983). Of course this has been defined to show that refuge is better defined as shelter rather than hiding (Hudson, 1992). In worldwide surveys of preference for tree shape, universally people prefer an open-grown tree such as the acacia and oak (Sommer, 1997; Sommer & Summit, 1995, 1996; Summit & Sommer, 1999). Although Ardi still had a grasping big toe for better climbing, he was not as good a climber as his quadrupedal counter parts; Australopithecus evolved to an even poorer climber and lost the grasping toe (but his brain was a little bigger and teeth a little smaller, which hints that he was more social). It makes sense that somewhere in the back of our earliest brain—the brain that acts from fear—we prefer a tree that is easy to climb and provides the best prospect for seeing possible threats.

But why come down from the tree in the first place? It was most likely not by choice, but because of population and survival. The environment was changing; glaciers were retreating in the north, aridity was increasing around the equator, and savannas were encroaching (Cerling, 1992). Savannas are characterized by a “complete groundcover” of grass and an “upper story of scattered tree” (Woodward, 2008, p. 67). The savanna provided one of the best conditions for human survival. The scattered open-grown acacia trees provided prospect—along with upright standing—that allowed long vistas across the grasslands. It is believed that humans “greatly increased the frequency of fires and expanded the area covered by savannas” (p. 70). It has been theorized and supported by research that we carry aspects of the savanna with us everywhere we go by manipulating the environment around us to make it more savanna-like. *Homo* is a direct descendant of the savanna. Some theorize that the ungulates and large amount of protein available
through socialized hunting helped the human brain make great advances. This growth of the brain allowed more working memory and even more advance symbolic communication and thus better social capability. Nature is not only physically embedded into our biology; it is part of our thinking and culture.

**Attention Restoration Theory**

[...]eyes wide with excitement and joy, leaping and running on a great expanse of California beach, storm clouds and towering waves behind him. A short article explains that the boy was hyperactive, he had been kicked out of his school, and his parents had not known what to do with him—but they had observed how nature engaged and soothed him. So for years they took their son to beaches, forests, dunes, and rivers to let nature do its work.

The photograph was taken in 1907. The boy was Ansel Adams. (Louv, 2007a)

Attention Restoration, as Kaplan (1995) has explained, has roots in the philosophy of William James and Fredrick Law Olmstead. Olmstead, in his 1865 report on Yosemite and The Mariposa Grove, wrote the oft cited, though not read much during his own time, quote “that the enjoyment of scenery employs the mind without fatigue and yet exercises it, tranquillizes it and yet enlivens it; and thus, through the influence of the mind over the body, gives the effect of refreshing rest and reinvigoration to the whole system” (Olmstead, 1995, para. 32). However, Olmstead, as a mentor of Andrew Jackson Downing and working alongside Calvert Vaux, is perhaps best known for the public park system—such famous parks a New York’s Central Park and the Emerald Necklace in Boston, Massachusetts.

Parks, which often have striking similar features to savannas, have become a crucial part of the dialogue in the mission to reconnect children with the outdoors, but, as
Olmstead describes, humans feel a certain innate connection to nature, but do not know exactly why. Harvard professor E. O. Wilson calls this biophilia and defines it as the “innately emotional affiliation of human beings to other living organisms” (Kellert & Wilson, 1993, p. 31).

Many writers and researchers are working to prove that biophilia, our ethics and morals, and our desire to preserve our ecosystems, come from early childhood experiences with nature (Chawla, 1999, 2006a; Gough, 1999; Gurevitz, 2000; Haluza-Delay, 2001; Kellert, 1993, 2005; Nabhan & Trimble, 1994; Payne, 1999; Van Velsor & Nilon, 2006). One such study looked at adult’s retrospective experience with nature while looking at children’s current experience and found that children experience nature, not as background, but in a “deep and direct manner” (Sebba, 1991). The nature of the relation of the early experience happens only in childhood and it shapes the memory with rich sensory perception that remains into adulthood.

In another study looking at children’s preference of artwork, “representational nature art was clearly indicated as the highest preferred art image for all age groups” (Eisen, Ulrich, Shepley, Varni, & Sherman, 2008, p. 186). However, no physiological benefits such as reduced blood pressure or respiratory rates were shown from the nature art, nor were there differences in these measurements between nature and abstract art.

Contrary to previous studies that found abstract paintings had a negative influence on participants’ emotions and behavior, one study found marked levels of anger and stress in male students when in offices with no pictures versus offices with either nature or abstract pictures (Kweon, Ulrich, Walker, & Tassinary, 2008).
Other studies, not with children, have found that “the presence of indoor plants in a hospital room leads to a reduction of perceived stress in patients” (Dijkstra, Pieterse, & Pruyn, 2008, p. 281). While the study did not look at the underlying mechanism for stress reduction, and the hospital visit was staged, the researchers noted that the plants were an aesthetic feature in the room that participants preferred. Tests have also been run on elderly people and found self-reported restorative values from nature pictures (Berto, 2007).

Regardless, Robert Ulrich, professor of architecture at Texas A&M, has done extensive research on environmental factors and patient health and recovery (Sherman, Varni, Ulrich, & Malcarne, 2005; Ulrich, 1999, 2002, 2006; Ulrich et al., 1991). Everything from floor layout, lighting, pictures, windows, and noise can affect patients’ health and healing. Ulrich states that “viewing nature settings can produce significant restoration within less than five minutes as indicated by positive changes, for instance, in blood pressure, heart activity, muscle tension, and brain electrical activity” (Ulrich, 2002, p. 3). Ulrich also cited Nakamura and Fuji’s 1990 and 1992 studies in which they showed relaxed brain waves when looking at potted plants versus empty pots and green hedges versus structurally similar walls.

Another such study monitored children’s attention and cognitive functioning when the family moved from an urban setting to a different house with more naturalness, greenery or open space, outside the windows (Wells, 2000). This study, admitting the many other cognitive and social factors affecting a child’s mental well-being when socioeconomic statuses change, still saw a marked difference in cognitive ability when the child’s house had more greenness outside the windows.
Extensive studies have been done looking at stress levels from commuting through urban streets versus drives through scenic natural roads (Hartig, 1991). One such study saw physiological stress reduction from watching videos of driving through natural scenes versus urban, built environments (Parsons, Tassinary, Ulrich, Hebl, & Grossman-Alexander, 1998).

In one study 120 participants who watched a stressful movie and then were exposed to one of six natural or urban settings videos, researchers found, both verbally reported and physiologically tested, a much faster recovery when participants saw natural environments (Ulrich et al., 1991). While the Ulrich et al. study saw high levels of involuntary or automatic attention, suggesting attention was not restored even though symptoms of stress were reduced, a recent study using eye tracking software found reduced eye movements by subjects when looking at natural environments versus built environments suggesting nature scenes require less eye effort (Berto, Massaccesi, & Pasini, 2008).

Regardless of whether biophilia is innate and humans have a genetic disposition towards natural scenes, or if the soothing power of nature is a learned reaction, studies continue to show that green spaces and natural settings do have restorative effects. In an experiment between wilderness backpacking, non-wilderness vacation, and a control group going about their daily routines, Hartig, Mang, and Evans (1991) found restorative effects from the experience with nature.

The major differences between the two sides on restorative experiences come from the disparate views of stress. Stephen Kaplan’s attention restoration theory (ART) comes from the classical definition of stress from physics. Stress is the tension felt by an
object when an outside force applies pressure. This is likened to hands bending a tree branch. The pressure of the hands created the stress felt in the bending bough. Stress is an outside factor that can be relieved. Roger Ulrich viewed stress, in the more colloquial use, as a reaction in the body. While both view stress as an outside causality, Ulrich’s viewed stress as something reduced by our contact with nature, and Kaplan viewed stress as a resource, like glycogen storage, that replenishes when not in use, or when viewing scenes that do not take effort.

Attention restoration has roots in the philosophy of William James. American pragmatist and godson to Ralph Waldo Emerson, James was a radical empiricist who did not believe in a dualistic view of the world, but preferred a more complex and diverse connection to nature. James believed in what he called voluntary attention (James, 1890). He said, “The essential achievement of the will, in short, when it is most ‘voluntary,’ is to attend to a difficult object and hold it fast before the mind” (p. 561). He stated we must attend to items in our life and will our bodies to act upon them even when they have no fascination or desire. He linked this to “getting out of bed” on a frigid morning. The muscle and ability are clearly present, but the will is not. James stated, “The strain of the attention is the fundamental act of will” (p. 564).

James divided attention into “sensorial attention” or “intellectual attention;” it was “immediate” or “derived;” and attention could be “voluntary” or “effortless” (James, 1905, p. 221). As S. Kaplan has stated, James did not “address the possibility that this mechanism was susceptible to fatigue” (1995, p. 170); however, James did not believe in a mind-body split and did acknowledge the affect of fatigue on the body and the consequence toward will. The parable James used of the military man not flinching at the
sound of gunfire was a story to address the inhibition of will. And while, as Kaplan states, James does not ever use the term, he is keenly aware of the inhibition process that must take place to block out stimuli. The implication that one type of attention must take effort implies a resource use that must be replenished. The ability to focus on one threat, or one idea, has great reproductive advantage. To be able to continue to stay focused on the threat of a predator and not allow your attention to change or distract keeps you safer. That ability to continuously attend takes effort. If humans cannot attend to something for extended times without rest, breaks are needed. Do certain breaks replenish the ability to attend quicker than other breaks?

Attention Restoration Theory looks specifically at humans’ ability to restore attention capacity (R. Kaplan & Kaplan, 1978, 1982, 1989; S. Kaplan, 1995). Directed Attention Fatigue has six components as laid out by Kaplan. (1) There are inhibitory roles functioning in the brain that block out competing stimuli to allow a person to focus on certain tasks. (2) As those inhibitory roles break down and tire, it affects problem solving ability because pertinent information cannot be selected appropriately. (3) While other aspects in the brain involved in problem solving might be more important, the inhibitory roles that allow attention to be focused might be the most fragile because they quickly diminish. (4) By not being able to focus, the ability to step back from a situation and think anew about a problem and to see the bigger picture involved in the problem. (5) Without inhibition, endurance and patience can be affected causing behavior to become short term. (6) There is an increased feeling of irritability as people become less likely to be willing to help one another. These six factors show how fatigued attention might lead to a stressful reaction to a problem or situation.
S. Kaplan divides the restorative experiences into four categories needed: (1) the experience must hold fascination for the individual. He identifies fascination with two subcategories as soft, things like bird watching and nature walks, and hard fascination, things like suspense novels and gambling. (2) The experience must have a sense of getting away. Like William Cronon’s essay on wildness versus wilderness (1995), the experience does not need wilderness per se, but the feeling of getting away from the daily world. (3) The experience should have extent. In other words, it needs to feel vast, but as Kaplan explains, because Japanese gardens have the impression of a larger world, they create that sense of extent and can also work to be restorative. (4) The final part of the restorative experience is how the participant must feel compatible and part of the place in which they are experiencing. A desert landscape in the summer, for some people, does not feel compatible to their existence, the same as a harsh winter situation might not to people not familiar with snow travel.

**Attention Disorder**

To understand Attention Restoration, there must be some talk about attention deficit hyperactivity disorder (ADHD). Because most tests on attention deficit have looked at ADHD, it is important to review the literature of ADHD. Barkley’s (1997) theoretic framework for ADHD states that “behavioral disinhibition comprises inhibition of a prepotent response, stopping of an ongoing response, and interference control, and children with ADHD are assumed to show a deficiency regarding all of these three, interrelated aspects of inhibition” (Berlin & Bohlin, 2002, p. 242). Rubia, Smith, and Taylor (2007) characterized ADHD under the criteria for “generalized impulsivity
disorder” (p. 276). Similar to S. Kaplan’s classification for attention fatigue, Rubia and others classify symptoms of ADHD into motor level (over-activity), cognitive control (poor performance on tasks), emotional level (irritability), and social level (social disinhibition). These are almost the same outcomes Kaplan predicted are caused by attention fatigue.

While most studies on attention deficit use children older than seven, one study used pre-school age children to run inhibition and continuous performance task (CPT) tests (Berlin & Bohlin, 2002). Literature on ADHD links inhibitory control mechanisms to prefrontal cortex and executive functioning (Barkley, 1997; Livesey, Keen, Rouse, & White, 2006; Manly, Robertson, Galloway, & Hawkins, 1999; Raaijmakers et al., 2008). While there have been some current research linking children with ADHD to a “risk allele (A2)” genotype (Bellgrove, Hawi, Gill, & Robertson, 2006), most research sees ADHD as the “extreme end of a continuum of inhibitory functioning and associated behaviors” rather than a separate distinct category of people (Berlin & Bohlin, 2002, p. 243).

As stated in the Berlin and Bohlin (2002) study, go/no-go response tests have been used extensively in ADHD research (Cragg & Nation, 2008; Iaboni, Douglas, & Baker, 1995; Simmonds, Pekar, & Mostofsky, 2008; Trommer, Hoeppner, Lorber, & Armstrong, 1988). Because Berlin and Bohlin were administering the test to children five years of age, they used four basic stimuli: a blue square, a blue triangle, a red square, and a red triangle (p. 245). They modified and complicated the go/no-go tests when they repeated the study at six years of age. They also used a Stroop (1935) test as an interference control. Because of age, they modified the original use of words and colors
to use pictures and asked for verbalization of opposites of the picture as quickly as possible and measure response time. They found inhibition errors, and not other measures of performance, correlated with problem behavior and hyperactivity.

A recent study showed that go/no-go inhibition scores improved drastically with age showing that children at age 9-11 showed marked improvement in inhibiting responses (Cragg & Nation, 2008). Recent fMRI studies on go/no-go tests showed different brain activity depending on the task performed (Simmonds et al., 2008). The study showed pre-SMA activation in both simple and complex go/no-go tasks that correlate with brain areas for selecting and/or inhibiting appropriate behavior.

While most treatments for ADHD require the use of drugs, there have been a few recent tests to look at training techniques to reduce symptoms of ADHD. One such test used non-contingent alerts to increase short-term attention (O'Connell, Bellgrove, Dockree, & Robertson, 2006). While this test did not produce any long-term positive results of commission in SART tests, they did see immediate, short-term improvements suggesting the possibility for other cues to help with attention. Another study showed frequent reinforcement brought ADHD responses to equal that of the control group; however, with infrequent reinforcements, the children with ADHD had a deficiency in sustained attention (Aase & Sagvolden, 2006). Very few have suggested nature as a possible supplemental treatment to ADHD (Kuo & Faber Taylor, 2004).

**Place Attachment**

Place attachment and place identity are research areas working to understand human connections to place. There is debate about the differences between the two terms
within research in the field (Chow & Healey, 2008; Hernández, Carmen Hidalgo, Salazar-Laplace, & Hess, 2007; Hernández, Martín, Ruiz, & Hidalgo, 2010; Knez, 2005; Lewicka, 2008, 2011). “Place-identity is defined as those dimensions of self that define the individual's personal identity in relation to the physical environment by means of a complex pattern of conscious and unconscious ideas, feelings, values, goals, preferences, skills, and behavioral tendencies relevant to a specific environment” (Proshansky, 1978, p. Abstract). Place attachment is the connection and bonding people have to places (Altman & Low, 1992).

The first research on place is Marc Fried’s work on the psychological cost of relocation (1963). People from Boston’s West End watched as bulldozers came and leveled the neighborhood they lived in to make way for new high-rise apartments. Through interviews, he noticed that people talked about their neighborhood as if they were grieving the loss of a loved one. He looked specifically at how people’s behaviors, attitudes, and decisions changed when they moved to a new location. Fried’s research changed the way urban planners thought about neighborhoods. Fried (1963) looked specifically at the varying ways people inhabit space, both physically and mentally. People were either insiders or outsiders. Fried specifically was trying to understand why places became meaningful to people. Yi-Fu Tuan, professor emeritus at University of Wisconsin-Madison, coined the word “topophilia” to explain human “love of place” (1974, p. 92). At roughly the same time, Edward Relph (1976) researched the difference between space and place. Space is something physical with measurable dimensions, while place is socially constructed.
More recent research shows that it is not the actual place, but “rather what can be called ‘experience-in-place’ that creates meaning (Manzo, 2005, p. 74). In work researches did on native versus non-native affective bonds to place, they found local people with a culture and history around the place had stronger affective bonds to that place (Hernández et al., 2007). Scannell and Gifford (2010a) did an extensive literature review on place attachment. They stated “place attachment is a bond between an individual or group and a place; this bond can vary in terms of spatial level, degree of specificity, and social or physical features of the place, and is manifested through affective, cognitive, and behavioral psychological processes” (p. 4). Scannell and Gifford proposed these three dimensions to be considered when delving into place attachment; however, through personal communication, Scannell said one limitation to the tripartite framework was the way time acted on place.

**Value and Economics**

Attachment to place, morals, and behavior, and even the passing of memes, has a lot to do with the values of a culture. There is a long history of research to understand how humans value landscapes and forests, and how these affect behavior (Hendee, Catton, Marlow, & Brockman, 1968; Daigle, Hrubes, & Ajzen, 2002; Daniel, 1988; Hendee & Dawson, 2002; Li, Wang, Liu, & Weng, 2010; Manning, Valliere, & Minteer, 1999; Raymond & Brown, 2007; Stern & Dietz, 1994; Stern et al., 1993, 1995; Vining & Typer, 1999). Douglas Sackman, in his essay “Consumption and the Angel of History,” called our current system, the “commodification of nature” (Rome et al., 2005, p. 87). Mrozowski (1999) connects colonization specifically with this commodification of nature.
by looking at the long history of European colonization in search of commodities to trade and sell.

The environmental historian Donald Worster said in an interview, “[E]nvironmental history should focus not only on the cultural history of nature but also on the interaction of culture and nature, where the landscape of economic production becomes the middle ground” (Harvey, 2008, p. 145). Old colonization methods, railroads and armadas, have switched to trade laws, tariffs, and embargos. Christine Rosen (Rome et al., 2005) stated,

Materials cycle continuously, from nature to industry and back to nature, in a never-ending feedback loop. The business system feeds on the natural resources found in the earth and on energy ultimately derived from the sun, as well as on the manufactured inputs of industrial supply chains. It returns its wastes to the earth, the seas, and the atmosphere. (p. 78)

Most environmental histories that deal with the western United States must tackle the interrelation of economy and ecology. California was shaped by money. Literally the shape of rivers and watersheds were scoured through hydraulic mining as people searched for gold (Isenberg, 2005). While Shiffman (Deverell & Hise, 2005) has shown the Los Angeles Prairie was “rapidly and profoundly altered by European settlers” (p. 38), all of human migration has had major impacts on the landscape (Denevan, 2011). Humans bring with them a value system from within their culture. This culture adapts to new landscapes; however, humans also adapt landscapes to fit into their known values and beliefs.
Culture is a complex web of human values, morals, beliefs, behaviors, histories, religion, and language. Culture has allowed humans to pass down, through different memes, artifacts of this knowledge. Language is one of the most fundamental aspects of a culture. Language is the most important tool for the transference of this cultural knowledge. As humans have migrated, they bring with them cultural values including behaviors and beliefs. While culture has adapted to new landscapes, humans have also drastically modified ecosystems in order fit the cultural knowledge they brought with them. Large-scale developments sometimes move dirt and water to create whole communities where the resources would not be available, but also there is also bioregional planning that tries to incorporate as much ecological knowledge into the planning process. These developments specifically try to incorporate the local environment into the planning process.

Humans have a biological connection to landscapes. Imprinted in our genes is a response to landscape. Socialization and community helps override those biological responses. Biologically, we seek out areas with prospect and refuge. That is an innate and deep-seeded biological part of us; however, through culture, through community, humans are able to over-ride those needs by coming together and working together. Language, and our ability to work together, fostered our ability to move out from the savanna and migrate across different ecosystems, and yet we still carry an affinity for areas of prospect and refuge. How and why we value something is part biological response and part cultural influence.
We learn morals at young ages through the communities and cultures in which we live and participate. Now, we see a disconnection to place emerging in the youth. More kids play video games than play outside. The diagnosis of Attention Disorders is on the rise. Places are becoming homogenous across architecture and design. Rivers are dammed and channelized, controlled and regulated for agriculture and recreation. Ecosystem-specific knowledge, along with the language of those ecosystems, is disappearing. According to this research the world needs a change in human behavior, and yet cognitive and emotional connections to the land are fading. Loss of diversity is widespread from ecological communities to human communities. We need the memes of a resilient community ready to face the challenges the coming generations will face.
CHAPTER III
METHODOLOGY

Introduction

There were a lot of questions guiding this exploratory research about the connections between culture, language, place, behavior, and ecosystem knowledge. Because of the methodological approach utilizing grounded theory, the researcher must allow the theory to emerge from all the work surrounding the project. While some of the data collection was formal semi-structured interviews and surveys, there was a lot of archival work, and hikes around the land, flights over the land, talking with people, and taking notes. At the onset, there were both mixed methods of data collection that included qualitative data such as interviews, essays, and archival work, and quantitative data from the use of surveys. This is the nature of exploratory research and grounded theory.

Exploratory Research

In general, exploration is the preferred methodological approach under at least three conditions: when a group, process, activity, or situation has received little or no systematic empirical scrutiny, has been largely examined using prediction and control rather than flexibility and open-mindedness, or has grown to maturity along the continuum […] but has changed so much along the way that it begs to be explored anew. Whichever condition pertains, the accent in exploration is forever on the inductive generation of new concepts and empirical generalizations. […] In terms of goals, exploration aims to generate new ideas and weave them together to form grounded theory, or theory that emerges directly from data. (Stebbins, 2001, p. 9)

The purpose of this dissertation research is to understand the ways in which culture, language, ecosystem knowledge, and behavior are connected to nature by using
Exploratory Research to develop theory. Robert Stebbins, in his book *Exploratory Research in the Social Sciences* (2001), explained four definitions for the verb *to explore*. The first one, “investigative exploration,” explains what social scientists do, but “only in the most general way” (p. 2). Every scientist studies and analyzes. The second definition, one linked to artistic movements, he called “innovative exploration” because the artist explores a new medium, sound, or substance in order to “achieve the desired effect or product” and then is “satiated” afterwards. The third one, “spatial exploration,” he also called “exploration for discovery.” The fourth, called “limited discovery” because the exploration is limited to searching “methodically” for a desired outcome, hinges on exploration in search of a specific item such as oil or gold. Stebbins defined the third definition as true exploratory research. This is research that tries from every angle, with every tool, and searches every square inch to discover all that might be revealed.

“To explore effectively,” stated Stebbins, a researcher must approach the subject with “flexibility in looking for data and open-mindedness about where to find them” (Stebbins, 2001, p. 6). From this comes “inductively derived generalizations” explained through a “grounded theory” framework. “Theory,” writes Stebbins, “is the primary goal of exploratory research” (p. 51). While not the traditional sort of speculative or deductive theory building, exploratory research is the “inductive generation of propositions from directly gathered data.” Building “theory from data” is the foundation of grounded theory (Glaser & Strauss, 1967). Theory testing comes and hypothesis based of the theory coem in later research and validation.
Grounded Theory

Grounded theory demands critical inquiry: it starts from the premise that the world is in a constant state of flux, and that individuals are not all equally placed; it seeks not only to uncover conditions that are relevant to the research question, but also to build in process and change by exploring how individuals respond to changing conditions and to the consequences of their actions. (C. White et al., 1999, p. 173)

Grounded theory is a method of data collection that includes coding and categorizing qualitative data looking for emerging themes (Corbin & Strauss, 2008). Grounded Theory, developed by sociologists Anselm Strauss and Barney Glaser in the 1960s, is intended to help build theory rather than test. Glaser and Strauss, challenging the “positivist methodological assumptions,” believed that qualitative methods, rather than being simple anecdotal information, could help develop “theoretical explanations about human behavior” (Hall, Griffiths, & McKenna, 2013, p. 18). Grounded theory, with roots in pragmatism, hermanuetics, and positivism, was influenced by the works of George Mead and John Dewey (Corbin & Strauss, 2008).

Eventually, Glaser and Strauss went separate ways with the theory. Glaserian grounded theory, following a stricter interpretation and sticking to the positivist roots, seeks an ultimate truth to be found through the data. Strauss, along with Corbin, followed a more interpretive and symbolic interactionistic methodology which stresses ontological relativism in a constructionist paradigm (Age, 2011).

Although Charmaz (2006) has argued that the interaction between the researcher and the respondents must be visible, which follows a feminist view of situated knowledge (Haraway, 1991), Urquhart has argued that grounded theory is orthogonal and can be
used by different researchers with different epistemological views depending on the needs (2012).

The most difficult part of grounded research is in what Corbin and Strauss (2008) have called the “ambiguity” (p. 5). It is a method of exploring and diving into data to see what might come up from it. There are large amounts of uncertainty and frustration; however, the researcher must be able to step back and see everything. Researchers are often intertwined into the lives of the subjects and become attached. While grounded theory is often used to “build theory” (p. 8), that is not the only goal for using grounded theory. Grounded theory can also connect the researcher to unknown literature on topics to make disparate connections across disciplines. The original goal of this research was to make better connections between language and ecosystems.

Participants

Introduction

There were two distinct groups of participants, i.e., lifelong residents of the area and the high school seniors and juniors. Both groups were asked to describe the most memorable early experience in nature. Along with these two groups, there were a lot of informal people who helped me understand the data or to look at this in different ways.

Lifelong Residents

Lifelong Residents, whom I affectionately termed the “old-timers,” a word used by one of the interviewees to describe the small group of residents who grew up together in this area, were found through a snowball sampling technique aided by the local South County Historical Society, of which many of the participants were members. All were
highly active citizens in the community; one was the mayor at one point, many were
docents of the Historical Society providing free interpretive field trips to younger kids.
There were 19 participants with ages ranging from 58-89 years old at the time of
interviews ($M = 73.21$); 10 male and 9 female participants; mostly Causcasion
participants with two identifying as Japanese and two identifying as Portuguese. The
average length of the interviews was nintey-three minutes. All participants signed
interview release forms (see Appendix C). All participants were asked the same list of
questions (see Appendix D); however, many of them spoke at very different lengths on
different subjects.

Using snowball sampling techniques, participants suggested other people to
interview. Interviews were typically conducted at their homes, although interviews were
also conducted at the South County Historical Society building or at the Central Coast
Salmon Enhancement office. While an attempt was made to interview most people from
the 80-year-old age range, the younger participants were interviewed because they were
third or fourth generation families from the area. Three of the older interviewees have
passed away since being interviewed. The New Ecological Paradigm (Dunlap & Van
Liere, 1978) scale was intitially used, but removed after multiple complaints from
interviewees.

**High School Juniors and Seniors**

High school juniors and seniors from Arroyo Grande High School were selected
to survey because they were most likely to have lived most of their lives in the local area,
and they were at the beginning stage of what Jeffery Arnett calls “emerging adulthood”
(2007). They have not fully spent the time to analyze their own identity and are a good reflection of the knowledge and experience of the entire community. Surveys and essays were used rather than interviews because of Institutional Review Board (IRB) restrictions for using minors in research. No identifying questions were answered, as requested by the IRB, in order to not need both parents’ signatures. A simple note of explanation went home to parents (see Appendix A).

Two teachers answered the request for handing out the survey and essay assignment to their students (see Appendix B). The head of the English Department stated using the classes from those two teachers would cover most all students; 179 students participated in the survey and essay writing. Ages were all 16-18 ($M = 16.64$) (Table 3.1). There were 76 female and 103 male participants (Table 3.2), with 62.2% identifying as Non-Hispanic White (White), 22.2% identifying as Hispanic, 14.4% as “other,” and one missing (Table 3.3).

**Archival Research, Informal Interviews, and Conversations**

As per grounded theory methodology, informal interviews and conversations with community leaders and/or historical experts were recorded into field journals for use during early data analysis. This information was also used to identify photos and maps to search for in the archives. Notes were also recorded during all excursions out into the landscape to see places participants spoke or wrote about. Field excursions were used to verify some claims.
Table 3.1.

Age of Student Respondents

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 years old</td>
<td>72</td>
</tr>
<tr>
<td>17 years old</td>
<td>102</td>
</tr>
<tr>
<td>18 years old</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 3.2.

Gender of Student Respondents

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>103</td>
</tr>
<tr>
<td>Female</td>
<td>76</td>
</tr>
</tbody>
</table>

Table 3.3.

Race of Student Respondents

<table>
<thead>
<tr>
<th>Race</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Hispanic White</td>
<td>62.2%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>22.2%</td>
</tr>
<tr>
<td>Other</td>
<td>14.4%</td>
</tr>
</tbody>
</table>

Qualitative

Data Compiling

All data was compiled together for microanalysis. Essays were typed into MS Word documents. Interviews were transcribed, field notes typed, and photographs
gathered. As suggested by Corbin and Strauss (2008), there are three considerations during microanalysis: First, there is the data, which includes interviews, photographs, recordings, and texts. Second there is the “interpretations of those events objects, happenings, and actions” (p. 58). And lastly, there is the “interplay” between the researcher and data. “Experience and knowledge are what sensitizes the researcher to significant problems and issues in the data and allows him or her to see alternative explanations and to recognize properties and dimensions of emergent concepts” (p. 59).

Analysis then moves into the three main phases of open coding, axial coding, and selective coding (Corbin & Strauss, 2008). The analysis phase starts at the word and line levels, moves out to ideas and concepts through asking questions, flip-flopping ideas, and comparing and contrasting hypotheses. The analysis process is very cyclical, constantly coming back to the beginning to approach data from different lenses.

**Open Coding**

Open coding begins by looking for phenomena (Corbin & Strauss, 2008). This is a search for patterns in the data that might lead towards concepts, or the “naming of phenomena” (p. 102). As the phenomena emerge from the data, the researcher compares and contrasts the “range of potential meanings” (p. 109) from the concepts searching for categories and subcategories with which to group concepts. As categories develop, the researcher must define the properties and dimensions of the categories.

For example, I started by looking at the phenomena through different lenses. There were theoretic, temporal, behavioral, ecological, spatial, historical, linguistic, economical, and social aspects about the area. I noticed through essays, interviews, and
hikes that a lot of the references had to do with changes in economics. Interviewees would say they did not have money for vacations, or they had to hunt to get food. They talked about agriculture and farming being too difficult of a way to make a living now. They talked about recreation in terms of what they could afford. Through the essays I could see some of the younger people had far away extravagant experiences with nature, and although I did not collect information about their parents’ income, I could see disparity in wealth in terms of the types of outdoor experiences people had. Some went to lakes on ski boats or to Hawaii, while others road bikes to the beach.

In the informal interviews a lot of people talked about the change in price of real estate and houses. While I initially grouped this into a category about economic growth, I settled on the idea of economic change to focus on the process that seemed to happen. The properties of this had to do with how economics changed the way people associated with the land. The different dimensions are what made me look at change, and not just growth. Money, the way people gained it and spent it, changed along a continuum.

**Axial Coding**

Axial coding specifically identifies the properties and dimensions of subcategories around the axis of the category. “Axial coding aims to link categories with subcategories, and asks how they are related” (Charmaz, 2006, p. 61). Subcategories must “answer questions about the phenomenon such as when, where, why, who, how, and with what consequences” (Corbin & Strauss, 2008, p. 125). The purpose is to get at the structure and process behind a paradigm that helps explain the conditions of the concept. Detailed memos of the entire process must be kept.
It was during this phase where cultural evolution and the idea of cultural entropy began to emerge. Because the Arroyo Grande Creek kept coming up in interviews with lifelong residents, talks around town, and in the archival history of the place, and yet was eerily absent from the essays by students, I began to focus on the different properties of the data around the creek.

Historically, the creek had gone through many different mutations. Economically, the creek and the land around the creek had changed. Ecologically, a dam, the growth of invasive species, and flood control, altered the creek. Socially and behaviorally, people were no longer playing in the creek. I hiked the entire length of the creek from dam to ocean, in the creek most of time, to see what it was like. No social trails other than the one recently built by a local non-profit promoting environmental education and stream education.

Because all of the data about the creek seemed to have dimensions of human values, needs, and attitudes associated with it, I grouped them into a category of cultural evolution. Because the driving change was larger than the creek, and even larger than the community, the properties of this category have to do with changes in cultural values with varying dimensions of connectivity. In many ways, the creek became a by-product, or casualty, of cultural evolution. From here, I began to think about the idea of cultural entropy.

Selective Coding

Selective coding, called theoretical coding by Charmaz (2006), is the “process of integrating and refining categories” (Corbin & Strauss, 2008, p. 143). This is where
things come together for the researcher to form theory. For example, while cultural evolution seemed to cover most of the topics, it did not fully explain the environmental degradation, or the ways in which relationships and communities were also degrading. Evolution did not imply anything negative, and if anything, it suggests positive characteristics towards better fitness; however, more and more people talked about things in terms of disintegration and collapse. In the process of “writing the storyline” (Corbin & Strauss, 2008, p. 161), the theory became clearer and was validated through applying the data and by returning to some participants for their reactions.

**Other Methodological Considerations: Researcher’s Role**

Although I knew there would be some issues with going to my birthplace to do research, I chose to spend my time trying to understand the first place I called home: Arroyo Grande. While I was afraid of bias and issues of objectivity, it never became an issue. Surprisingly, there was a lot that I did not know about my first home. Knowing about the place and some of the history made some of the interviews easier; however, it also stopped me from asking certain questions about places because I might have thought I already understood something about it.

This idea about home is further developed inside of me by looking at my parents. My mother has never left the area. In contrast, my father moved many times as a child and was there only for the end of his high school, and eventually moved on to another place. For more biographical information see Appendix E.

Although I started out trying to understand how language was connected to behavior, with more and more reading, talking, and analyzing data, it become clearer that
I was beginning to believe language was a placeholder for culturally held values and beliefs. My past as a poet and writer shaped my ideas about language and the importance of language towards culture.

To minimize bias, I constantly discussed findings, ideas, concepts, and the theory with people outside the area and within. I discussed this with other professionals conducting social research and language work to get their input about ideas.

Throughout this writing process I have taught, moved, studied, and continued to read on and around this subject. I have constantly found new and pertinent information; however, at one point, I started to bracket this new information to save for another date in order to finish this dissertation.
CHAPTER IV

RESULTS

Introduction

Based on the data collection for this research project, utilizing a Grounded Theory approach, I found eight major phenomena and recognized one that seemed to be missing, but was expected to be there. The eight phenomena became five categories: Water, Food, Economics, Nostalgia, and Family. The missing category is Religion. A major theme in the research is cultural influences, both local and national, or a larger culture coming from outside the local region. Over and over again, culture united all categories. I then decided to put this lens over all the data to see if there was an underlying theory around culture that could explain all of the phenomena. As I kept looking more at the data, I would see the pressures of a larger outside culture influencing and shaping the local culture and even shaping the landscape.

Of course, in California, as in most of the world, the culture first came from outside the area. The main difference was how further and further disconnected people seemed to be from the knowledge about the local ecosystem. Part of the responsibility of culture is to protect the basic functions needed for human survival which would include water, food, and shelter; however, the pressures from a larger culture, one that revolves around a national, and even global economics, created a disassociation from understanding the local ecosystem. Rather than food or water being most important for the people living there, it was more about economics and making money. Even though older generations of people living in Arroyo Grande grew up very close to the land, and
still retained a lot of the ecosystem knowledge, this meme from the culture was not being transmitted now. Money became a replacement for what culture seemed to have provided for humans.

As I began to look more and more at the ways this culture of money was spreading across the smaller cultures and communities around the world, I started to think about entropy and the idea that things tend to head towards disorder. However, I did not think this was something that would never decrease the way the Second Law of Thermodynamics states about entropy. Entropy is more about the amount of energy in the system unavailable for work. The theory of cultural evolution states that culture has allowed humans to adapt to different ecosystems and in doing this, bypass biological evolution. Now, it seems we are adapting ecosystems to a national, if not global, culture. For me, this is the theory of cultural entropy. The more we try to spread one culture over varying ecosystems there is a loss of the very thing with which culture is to protect. In this way, culture is no longer doing the work needed. In fact, the more one culture spreads over larger geographic distances, the less work the culture can perform.

Nonetheless, as I kept studying this theory, I began to see a way in which a meme, such as the Arroyo Grande Creek, might be re-introduced to a culture while maintaining current cultural norms and looking towards a more sustainable future.

Water

The Creek

During the open coding process of Grounded Theory (Strauss & Corbin, 1990), there were a lot of phenomena found in the various data collection methods. The first and
strongest phenomena were about Arroyo Grande Creek (Figure 4.1). In every single one of the interviews with lifelong residents they spoke about the importance of the creek during their childhood. As one participant stated, “We didn’t go into town all that much or play in town, it was mainly for us, for me, around here. And, things I remember revolve around the creek.”

This sentiment about the importance of the Arroyo Grande Creek is the most prominent phenomena of all the research. In archival work, I saw pictures of the creek flooding, and bridges wiped out. I read about early Chumash settlers coming to the valley because of the creek. I read the biography about Francis Ziba Branch, the first American settler to get a land grant. The reason he chose the land was because of the fertile valley from the creek. I read about the dam and what it did to secure water and allowed for growth in the area. I found past city recreational plans passed, but never enacted, which created camping sites and swimming holes along the river and built a greenbelt along a section east of town. And most interesting of all, was how, in the 179 essays collected from current junior and seniors at Arroyo Grande High School, only three participants mentioned the creek directly. The creek was almost gone from the conversation. One particular participant had this to say about a memorable experience in nature:

When I was 8 years old me and my father [sic] went on a weeklong backpacking trip in the Sierras. I remember this and it stands out more than the majority of my other experiences in nature because it was the first time I could actually appreciate my surroundings and take in nature. I was in awe by the size of the trees. And since we really have no streams or rivers in our area so was just mesmerized by the sound & beauty of the river. The fishing was not bad either.

While Arroyo Grande Creek is technically not called a stream or river, although it did historically run year-round and contain anadromous steelhead trout, the participant
seems to not even consider it something worth appreciating. It was difficult to understand how much the creek had really changed, and how much was cultural memory. One of the two students who wrote about the creek said:
When I was younger and would accompany my dad to his work because I wasn’t allowed to stay home alone, my favorite place to go was a little creek that goes on for miles and that passed just on the outside of where my dad works (for the Hayashis). Every chance that I got I would go to it. It was so much more different than the fields my dad worked, while the fields were dry and desert-like, this creek was green and full of life. There were trees on both ends of it, fish inside. There was a loud noise of running water. It was beautiful.

The little creek this participant writes about is the Arroyo Grande Creek. Strangely, the participant does not seem to know the name of the creek or anything about what it represents, even in terms of the agricultural land in which the participant’s father works. One of the other mentions of the creek is about directly fishing for trout in the creek near a specific location mentioned. The creek above the dam still maintains a good population of trout. The other mention of the creek could possibly not be the Arroyo Grande creek because it was not directly named, but the descriptions match that of the creek. However, other people did mention uses of some aspect of the watershed. Eighty-four percent of the participants did not have their memorable experience in nature in the local watershed (Table 4.1). Most of these experiences that did happen locally happened east of the town at the local reservoir called Lopez Lake. One person mentioned a known swimming hole and waterfall above the dam called Big Falls where many locals will go. One other mentioned a swimming hole that sounded similar, but they did not elaborate or make it known that this was the same place. Given the benefit of the doubt, 13.2% of participants who completed the essay wrote about some aspect of the Arroyo Grande Creek watershed as a place they went to as a child.

The youth response is in stark contrast to the interviews with lifelong residents. Every single lifelong resident was quick to talk about having most of his or her memories
revolve around some aspect of the creek. For example:

Um, I was thinking about that and basically we grew up on Allen Street and I was the middle child. I have two brothers and I think mainly what I remember is every day we would get up and roller skate or ride our bikes down to the, do you know where the water gauge is? We went down there all the time.

And another of the lifelong residents:

I would say, my favorite place to go was the water gauge because we would go, my brother and I, and wade in the water and catch skippers and catch blue belly lizards and you know, build dams and sometimes we would go fish, and you know I love the water and it was just, looking back it was a place to commune with nature. You know, do a lot of daydreaming and lie next to the creek and listen to the water.

In fact, not only did every single one of the lifelong residents speak about the creek, most of them would talk specifically about fishing the creek, and still remember when opening day of trout season was even if they did not like fishing. This was a constant theme in the interviews.

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Table 4.1.

*Frequency and Percentage of Student Respondents Who Wrote or Mentioned the Local Watershed*

<table>
<thead>
<tr>
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<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
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<tbody>
<tr>
<td>No</td>
<td>151</td>
<td>84.4</td>
<td>86.8</td>
<td>86.8</td>
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<td>Yes</td>
<td>17</td>
<td>9.5</td>
<td>9.8</td>
<td>96.6</td>
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<tr>
<td>Missing</td>
<td>5</td>
<td>2.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>174</td>
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I used to go fishing with my brothers on May 1st with my brothers they would wait for trout season to open. They brought those trout home and fry them with potatoes; I couldn’t stand them. Yeah, I went every May 1st with them. I had forgotten that when trout season opened, we would go up the Arroyo and, I don’t think I did much fishing, but they always caught quite a few. Just up the creek.

This led to questions about how the creek had changed (Figure 4.2). Was it inaccessible to most people? How did it become this way? The responses from the lifelong residents varied. One person thought the creek had not changed at all. Another was worried that they had allowed the creek to become overgrown. Another talked about how they built flood control canals to route major water away from the traditional route to control flooding of housing developments built on what used to be agricultural land. Another talked about nitrogen run-off from agriculture creating problems.

I hiked the creek. I started right below the dam. This is where originally the three major branches of the Arroyo Grande Creek converged together. Somewhere below the dam still remains the remnants of Routzan Park, another part of the creek I will write more about later. From the dam, I attempted to hike downstream to the ocean. It was impassable. I tried to picture all the steelhead that used to run up this river, enough to where one participant said:

Yeah we had some good years with steelhead. Didn’t catch them all legal, but there used to be a big, big steelhead run, all kinds of steelhead. And we would catch them, in those days fishing season opened the first of May and uh, we would always go up Lopez Canyon and there was always landlocked steelhead all over in the bigger holes in Lopez and we would prey on them.

As I tried to trudge along the muddy sludge of a creek, all I saw were crawdads and turtles. I could not even imagine the lines of people that used to fish along the creek on opening day of trout season. One participant said you would have to get there early to
stake your fishing spot. Now the river was too overgrown to continue. With mud up to my thighs and branches covering the entire river, I had to give up and walk the paved road alongside.

I called for a ride and had a friend pick me up along the river at a park called Biddle Park, a barely used park created partly to replace the flooded and loved Routzan Park. Why was this park not used and the other loved? The major difference between the
two is the creek. Biddle Park, with all the great grass and baseball diamonds, does not have creek access or a place to swim.

My next foray into hiking the creek started at the water gauge. The water gauge was the only place directly mentioned, once by a student participant and again by a few of the lifelong residents. A recent trail was built by California Conservation Corps to keep access open to this spot while also minimizing erosion. This spot was still used. People did still play in the creek, but then I began to hike downstream. The creek was quickly overgrown again. Even the backyards of houses that abutted the creek, which once had gates and hints of paths, were overgrown now and unused. Debris dams were found, homeless camps, but very little sign that anyone came down to play. No dams to create swimming holes. Most of the creek was completely overgrown and inaccessible. I fought through the overhanging stinging nettles and poison oak. Large chunks of cement had been dumped into the creek along the banks.

It was almost impossible to reconcile, for example, how this lifelong resident spoke about the creek with how it looks right now:

Every year my dad would take a Fresno scraper, tie two horses and scrape out the creek bottom and build it up until we had about four or five feet of water and he would build a diving board, by burying it in the ground. We became regular fish and we could swim and never afraid of the water.

Could this even happen now? For many reasons this method of living was gone. Technology changed a lot of the ways people interacted with the environment around them. Part of the problem seems to be that because humans moved into this area without a cultural memory grounded in that specific location, and by the time European settlers came to the Arroyo Grande Valley, many of the native Chumash had already died from
disease, or moved north to live near the mission. While the Spanish drastically altered the local culture by introducing a different religion, those early settlers also brought with them a new system of tools for landscape management.

A story related to me from one of the city council members who moved into the area almost 30 years ago said he went over to a friend’s house recently. They were remodeling one of the old farmhouses and stripped down all the cabinets to the bare wood. The City Council member studied forestry in college and his friend called him over to identify the wood. He said his friend thought it was mahogany, but once he got there he realized that it was another sign of how people do not know what used to be in the area. The cabinets were made completely of sycamore. However, if you were to look around the valley, barely is there a trace of what used to be there.

A few different resources explained how the entire valley used to be covered in what was called the monte (R. Brown, 2002). Francis Ziba Branch, the first European settler built his adobe house up the valley about eight miles from the ocean. “From that point on to the ocean, the creek had no channel; it just spread out in the monte, creating bogs and ponds as it made its way to the sea” (p. 16). From another source, “When Branch arrived in 1837, the valley floor, well watered, was filled with trees and an impenetrable dense growth of willows, cottonwood, sycamore, and other trees (Saari, 2009, p. 78).

Before Branch settled in the valley, the Chumash Indians had settlements, two of which were also located along the Arroyo Grande Creek. For over 2,000 years before the first Europeans came there, the Chumash had built homes along the Arroyo Grande
Creek. The creek was, and still is, the main reason humans are able to live there.

However, the creek has made some big changes. As one participant said:

You know today, I am worrying about that creek. Looking back. I have pictures, 1860s -1935 or something like that. It tells about the terrible floods they had in the mid 1800s, that is what cut that creek. In the early days, the creek was about three feet below the street, just a little creek that wondered through there, but they had a big storm that cut the banks, came from Newsome and Lopez and converged and cut that whole ditch through.

Of course there is some confusion about what the creek did originally and when and how it changed (Figures 4.3, 4.4, 4.5). In the book According to Madge (2000), by long-time resident and reporter Madge C. Ditmas, also quoted in Brown’s book about the Arroyo Grande Creek, she wrote that the creek used to flow on the south side of the valley and that some local residents dug a ditch to bring the water into the Arroyo Grande Village by building a dam upstream and diverting the water down their ditch. Heavy rains fell early and the small dam was still in place. “So heavy was the flow that the main channel of the creek swung to the north side of town, where it has remained ever since” (Ditmas, 2000, p. 251).

On the north side of the valley, the creek has slowly incised deeper and deeper until what was once only a few feet is over 20 feet below the street level now. The main problem with the creek is not just that it has deeply incised, but that as more developments get built, more rain water rushes to the creek, hastening the rate. Although the city has created a lot of flood control, it still floods. One lifelong resident stated:

It takes a long time for Newsome Springs (one of the creeks located downstream from the dam) to fill up, but when it does, they have a lot of heavy rain for a extended time, the underground is so large, the drainage is tremendous out that little canyon; it comes out and runs alongside the
Figure 4.3. Arroyo Grande Creek after major floods in 1911. The creek moved from its normal route to where it currently runs. Photo courtesy of South County Historical Society.
Figure 4.4. Arroyo Grande Creek after major floods in 1911. Photo courtesy of South County Historical Society.

Figure 4.5. Arroyo Grande Creek after floods of 1911. The creek is becoming overgrown and incising deeper. Current creek is another 10-15 feet lower.
field; it used to go gently to the creek; however, when they keep running it down the side, they keep making the channel bigger. The box culvert directed the drainage to the south side of valley. The problem is that, in the early days it just flooded, now you have the trailer park down there. It would flood across the irrigation, that wasn’t a big deal, but the capacity for the pipes to carry it to the ocean is not big enough, the water would fill up and flood the trailer park. So to fix that problem they direct it more this way, which created a problem here and this place has been flooded probably three times, carpet damage, little bit of water, a lot of water flooding through garage, took out our yard. We sand bag out there to keep it out of the house. Recurrent thing when that aquifer fills up with extended rain.

All of the ponderings about which way the river is supposed to go, or used to go, does not really matter. The truth is that the entire valley was a giant bog filled with willows and sycamore. The river probably migrated frequently, but the plant life kept it from incising any one channel. People have forgotten, or never had any idea of what the area once really looked like. That memory of the landscape seems gone and not just because of the large migrations of new people, but even from the people who were born and raised here.

Of course the biggest change and perhaps most devastating to the perception of the Arroyo Grande Creek came from the construction of a dam. Prior to the dam, the area had no flood control, but also had nothing to stave off drought, both of which happened often enough for it to be a part of the cultural memory of the town. Wet years saw bridges wiped out and crop fields flooded. Droughts came along and cattle died from starvation. And fires were a constant threat without a good source of water not to mention death from typhoid and other such water-born ailments.

Nonetheless, the participants spoke about the loss that happened when the dam went up was more than what they gained. For the older generation, most of the people all
had a special summer camp up Vasquez Canyon, at what is now the Vasquez Arm of Lopez Lake. One lifelong resident stated:

Well probably the first thing I remember, outdoorsy my parents and nine other families in AG bought a piece of ground up in Vasquez canyon which is the canyon the runs into Lopez canyon and we all built cabins up there and the families as soon as school was out, all the families would move up there and spend the summer. The men would drive back and forth to town every night, or every night and morning to work and us kids would just run wild up there. And uh, with the ten families there were probably 15 or 20 kids from the age of 5 to 15. And uh couldn’t we just had the run of the place we could just go fishing, we could go rock hunting we could do anything we wanted. It was called El Campo.

El Campo was described by all the people who had cabins or platforms up there as a type of childhood paradise. According to one of the participants, the lake flooded them all; they were paid pennies on the dollar for the price of the property. El Campo was a place where they learned to fish, learned to hunt, learned to swim, and spent most night sleeping under the stars. The parents gathered together at night and played cards.

In the same area, but a little downstream, the County had built a park that some simply called “County Park,” but others referred to it by the name “Routzan Park.”

Routzan Park was a big place, we would go up there and play softball, it was like rock. You didn’t really want to slide into base, very seldom, but a beautiful park, you could go fishing there and catch fish, but the baseball diamond was the biggest attractions or going up the hill.

While many people did talk about the baseball diamond, they replaced Routzan Park with another park just down from the dam called Biddle Park with two baseball diamonds with grass fields; however, not a single participant mentioned going to this park. In fact, most days it is completely empty. The major difference between the two parks is that Biddle has no access to the creek and no swimming or fishing at all. By all other accounts, Biddle Park is nicer.
And while all the people mentioned Routzan Park, most of them acknowledged the need for the dam in terms of water control. As one person said, “We used to take our kids out to County Park, but now it is under water. It was beautiful. My father was totally against the dam, but the whole town would have been wiped out if it wasn’t there.”

Another person, when talking about the dam said:

Well, that was a sore subject for a while too. My husband couldn’t see it, because you know, we had fun at that Routzan Park. The kids used to go up there, hiking up on the hill there, or go down in the creek. That was fun, but they had to do away with it. Well, we thought, God, why are they building that? But it’s a good thing because it used to flood down from where I was.

While most people talked about the park with fond memories and longing, one person talked about the large oak trees they would climb and watch everything from the large branches. Others remembered sack races and potlucks with the entire community. None of the participants spoke about Lopez Lake, the reservoir that flooded their park, the same way. In fact, most people did not even mention Lopez Lake as a place they visited. One person said, “…as for as Lopez Lake is concerned I never go out there. I haven’t been out there in years.”

Most of the work done on the river has been to control the devastating effects from the river, but while that happened, it also erased the river from the cultural memory. Below the dam, all the tributaries have been channelized to control flooding. What used to be a giant bog of trees and brush, that ended at the ocean where large dune lakes were created, eventually breaking through the sandbars created from the long shore current moving sand north to south, now is a tightly controlled levy system to rush water out to the sea when needed.
Water flow is maintained in order to make sure none is wasted by going out to sea. The water table is monitored to make sure adequate water for agricultural wells and to keep saline water from the ocean from migrating inland into the wells. Big levies were built west of town to keep water from flooding out into the agricultural fields and destroying crops, even though that system of flooding is what made the soil fertile and rich. Industrial style agriculture is used with water pumped from wells, and chemicals and fertilizers sprayed onto the crops to increase yields.

The Ocean

The ocean was something both the lifelong residents mentioned and the students wrote about in the surveys; however, the way they spoke about it was quite different. While the students did not mention the ocean a lot, they spoke about it differently. Twenty-eight students mentioned the beach as one of the memorable places from their youth; however, only ten of those were identified as beaches considered local to the area. The beach for these students had a sense of awe to it. It was both horrific and terrifying while also mysterious and beautiful. Often, it was both for the students.

I was spending time with my 3 best friends and we decided to go out to Shell Beach, by the dinosaur caves. There is a park there and we sat for hours talking and looking out at the ocean. It smelled, tasted, and sounded like the ocean. There was a huge moon and its reflection in the water was indescribable. For one of the first times in my life, I felt the glory of nature. I just felt joy, excitement, any good feeling I can describe, I felt that night at the beach.

The students were often scared when first approaching the waves and the ocean. It was cold and frightening, but filled with a beauty from how they reflect on it now.
Well living on the central coast my first experience would be the ocean. When I first saw it, it was big and blue and when I stood in it was freezing and I loved it. It tasted really salty and sounded like a whooshing sound.

This way of describing the ocean was not present in the lifelong residents. In fact, they spoke about the ocean in very utilitarian terms. For example, the lifelong residents spoke more about the ocean in terms of food.

When I was real little, would have been maybe 1930, we would go down to the beach and Mr. Marsellic would take a wagon over there, he would take horse and a plow and he would just plow a furrow and we would pick up the clams and throw them in. And we ate them and we ground up the shells and gave it to the chickens. Which is the calcium I guess; we ate clams, clam chowder and of course, even up until oh gosh 1960’s you could go down and dig a limit of clams and it was a delicacy. They were good to eat. And it was also a big gathering. If there was a low tide, half the people of Arroyo Grande would be down there. We would stay down there and have a clambake. Throw the clams in the fire and steam them and eat them down on the beach and bring home a limit of clams.

Interestingly enough, this is the way most of the people through history seemed to view the ocean. Of course, the Chumash were said to have first migrated to the California coast fishing and hunting sea animals. Francis Ziba Branch first came to the area and made money by trading sea otter pelts. In looking at archival photos, the places where people did go to the beach were places where the creek came to the ocean. Historically, the Arroyo Grande Creek did not reach the ocean unless there were major floods. Instead, the Arroyo Grande Creek filled into dune lakes. Both Avila and Pismo were, and still are, major tourist destinations (Figures 4.6, 4.7, 4.8).

The lifelong residents I interviewed all spoke about clambakes and surfperch. They would go down to the beach for food. Of course, as one lifelong resident pointed out, the clams are no longer there in those numbers now. This person blamed the sea otters, which were placed on the federal endangered species list and are protected from
Figure 4.6. Avila Beach during fleet days circa 1920. Most of the beaches attract major tourism. Photo Courtesy of South County Historical Society.

hunting now. Also, the abalones, which were once abundant, were made illegal to take. However, the surfperch can still be caught. Nonetheless, few people go down there. I tried my luck a couple of times, and caught a few one time, and saw only two other people surf fishing.

Nonetheless, the interesting part about this is in the language. The lifelong residents, while they might take it for granted, the beauty of the ocean, they did not speak about the ocean imbued with the same mystery and awe. Of course, many of the students spoke about the ocean in terms of swimming and surfing in the ocean. This was something not once mentioned by the lifelong residents. While it is possible that some of the recreational habits and technology has made recreating in the ocean more
Both Pismo and Avila not only are major spots for tourists, both have creeks flowing to the ocean and were original village sites for Chumash tribes. Photo courtesy of South County Historical Society.

comfortable, a lot of people, especially kids, do not have wetsuits. As children, they remember going into the ocean with nothing more than swimsuits. Nonetheless, this shows a cultural switch. While all the lifelong residents spoke about the creek and the
canyons above the town as places they would go to swim, more of the students identified swimming in the ocean.

In archival photos of Pismo Beach, there are hundreds if not thousands of people traveling to Pismo and swimming in the ocean. People obviously swam in the ocean, but this was not a memory that stood out to the lifelong residents. While most of this is conjecture, the summer at the beach is not really the best time for swimming. The wind picks up, a fog comes in if there is no wind, and it is not that warm. However, if you go inland a few miles, the temperatures quickly rise. Why people now identify more with the beach rather than the creek is a mixture of things. The creek has surely changed; but it could still be possible to have swimming holes. Above the dam there is a still frequented swimming spot called Big Falls. Nonetheless, going to the beach for the summer is part of a larger cultural norm. The beach is what now makes the place important and different. Hundreds of thousands of tourists invade the coastal beach camps and hotels throughout the summer. One of the most important parts of the area’s economy is now tourism driven by people wanting to recreate at the beach. The most expensive homes are now homes with beach views or close to the beach. There is a social status about living close to the beach.

Food

Agriculture

It is hard not to notice that the root word of agriculture is culture. Of course culture itself comes from Latin for the place tilled. Almost all of the lifelong residents spoke about the importance of agriculture or gardening to them.
That is one thing, when we were younger, like the family thing excluding my dad, we picked walnuts, picked green beans; people had bush peas, and we would pick those and I did drive tractors for Silva brothers. Just kick it in gear, and it would go down the rows. I did cut broccoli, we had a big wagon and you cut the broccoli and threw it in the wagon. We picked strawberries for Deleon, peas, beans, apricots—they are gone now—Kenneth, my cousin had a couple acres by the hospital; they put brand new town houses there now; he had property and had apricots there and we would go pick them, but that was only during the season. It was just seasonal. Summertime, we picked all that stuff. Almost everyone had to deal with bailing hay or piling hay.

Arroyo Grande is often simply called AG. A bumper sticker I would see around town would say, “Keep the ag in AG.” The town has a long history of people living here because things could be grown. Of course, that was true with most areas settled across the United States, and the reason Native American tribes stayed and made homes there too. They knew how to find food. For them, it was acorns, black sage seeds, and fish. For the settlers, it was raising beef and anything else they could grow. The land was extremely fertile and the growing season was year round. One participant said they started out as a grocery owner, but then his father “sold it and became a farmer. He raised artichokes, walnut, and apricots.” With the narrow gauge Pacific Coast Railway coming right through town, there was a market to ship things out. However, even before the railroad, when the gold rush hit, it affected the area. Francis Branch, the founder, tried his hand up North to find gold; however, he ended up making more money raising beef and driving them north to be sold to the throngs of people rushing to California.

The area has felt the national cultural demands since the very beginning; starting with shell trading from the Chumash to other neighboring tribes, beef with the early settlers, and the viticulture industry that is taking over the land now; the Arroyo Grande Valley has felt the flux of outside influences in the agriculture fields. One story related to
me was about a pumpkin dehydrator that came into town during the war to dry and can pumpkin flour. Quickly everyone in the valley started producing pumpkins until the dehydrator could not keep up and many of them rotted in the fields. The need for pumpkin flour dissipated quickly as the war ended and the business went under.

Another story told me was about an Arroyo Grande apple. It was said that an Arroyo Grande apple was one of the most desired apples and would sell as far away as New York. They would advertise the apples and everyone in the valley had apple trees. A shipment of boxes came in infested with a bug that wiped out the apple trees and everyone cut them down. I could not find anyone to corroborate the story and have read elsewhere that many of the apple trees were used for hard cider and when prohibition came along, most people cut down their apple trees. In my interviews, none of the participants knew anything about the apples. If it was true, then it was another example of cultural memory quickly fading away.

A fruit that has continued with great success is the avocado. Brought up from Mexico, it took a while for the American culture to desire this fruit. One participant said, “In the early 60s, we planted our land in avocados; before that we raised hay for bailed hay. We’d raise it and the guy would come in and cut, bail it, and haul it off.” He still sold avocados at that time and gave me a few to take home with me.

Another common crop that was less known by most people were artichokes. “People would come through town and they didn’t know what an artichoke was, thought they were a pineapple. We had things like that.” These were common things for the participants when they were young. Not everyone grew everything; people often shared their bounties with each other.
Well, on this parcel, we had a cow and we had chickens, we never had pigs because our neighbors, the Marselics, did. They owned all the land where the newer houses are over here. They had pigs and they had...he was a honey, he had bees, he was a bee keeper, and we had this lower part of the ranch here was all in fruit trees, so we traded apples, apricots, whatever, with the neighbors and so everybody pretty much shared...we had a horse too, a draft horse to pull the artichoke cart to pick artichokes.

Even if your family did not directly grow, everyone’s success was around the agriculture business.

We didn’t have a garden, but my father’s business was with growers, we would come home, instead of bringing a crate of artichoke, he could only bring half a crate, but yes, we lived off the land, not that we grew it.

Everyone worked in or knew something about the agriculture business.

I started working early, I was picking strawberries to ship, working at business and I knew what he was doing, from time of five years old I was out with my dad. I grew up inspecting lettuce or looking at broccoli or other things. I was there.

Everyone thought of this as an important part of his or her youth. It was something that taught them a lot, and something they felt was missing for the youth today. As one person put it, “Farming grounds you.”

Many of the lifelong residents lamented what they thought was the loss of agriculture to the youth. As one person explained, “I asked my brother’s child where the milk comes from and he said the grocery store.” While some saw the new trend of urban homesteading and thought of it as beneficial, most guffawed at the idea.

Organic garden, never heard of such a thing, we did that our whole life. We put in an acre of potatoes. Harvest them, bag them, put them in straw under the tank house, and ate off them all year; you had to peel them a little deeper towards the end to get past the rotten parts. We cooked beans, raised our own beans, and when we killed a beef, you couldn’t store it during the day, at night we hung it and let the breeze put a thick crust on it.
It was not a hobby, but a way of life for most of them, one they feel is disappearing. A common theme told amongst the lifelong residents was how everyone would share things. There was a sense of community in how they supported each other. Because they could not store meat, when one person butchered a cow, everyone got a little bit of it.

I didn’t grow anything; Daddy had a garden and we always had meat. He butchered; he butchered deer and things like that for other people. We always had meat, even during the war. A lot of trading was going on during the war. If you had an excess of something, and someone else had excess, there was a lot of trading going on.

Most of the lifelong residents were born in the middle of the Depression and lived through World War II. A few of them left to go to war. The Japanese farmers were interned during this time in camps. A few stories were told about how land was exchanged during the war to keep the Japanese farmers from losing their land while being interned. It was a darker part of Arroyo Grande history and most of them did not seem to want to talk about it except in fleeting moments. There was a current exhibit at the local Historical Society and I interviewed one of the farmers interned. He did not have much to say about it except how nice everyone here was. Nonetheless, the war and the depression put a mark on the way the people in the culture treated each other. Even if they were not born during this time, their parents were and the mentality of saving food, storing food, and taking care of each other was something they talked about. Along with growing food, everyone talked about hunting.
Hunting

Hunting has been a part of the human race for most all of human existence. In the Arroyo Grande Valley, hunting has also been a major part of the culture from the very beginning. The Chumash were known hunters; Francis Ziba Branch was a trapper and mountain man who turned to ranching later in life, and when interviewing the lifelong residents they all spoke about hunting. Either they personally hunted, or people in their family would go hunting and they would all eat it.

Everybody got their hunting license. It was a dollar for the license and I believe it was 2 dollars for a deer tag. So for three dollars, the hunting license enabled you to hunt everything except ducks. You had to have a special tag or stamp if you wanted to hunt ducks because it was a federal migratory. It was migratory and everything else we could hunt with just the dollar hunting stamp.

This was positioned opposite to the student responses where only two students had their memorable experiences hunting. One student said:

My earliest experience with nature was when I was three or four and went hunting with my dad. I saw how animals and things in nature acted. We would go out really early and I remember being extremely tired. We would get to the ranch and he would tell me to keep my eyes open for any animals and if I saw them I was to tell him. At first all I saw was trees but when we got into the canyons I saw hoof prints and birds. My Dad later explained to me that they were quail. As the sun got brighter I was able to see deer and squirrels.

None of the rest of the student responses wrote about hunting. However, for most of the lifelong residents, hunting was part of the memory of place. As one participant said, “I loved dove season; where the cemetery is, I would hunt quail and dove up on the hill there.” And during another interview, one of the participants pointed out the window, “In fact, I killed my first deer right up on that mountain.” Many of them would
speak this way about hunting grounds that now are so residential it is hard to imagine walking out there with a gun.

While this seemed to be typically the realm of men, it was not always that way. One lifelong resident told me about how she was the first-born and so her father would take her hunting.

I knew about animals because I hunted with my father. If I was youngest I wouldn’t be able to tell you. All the men had sons so he drug me along. I have always been drug along, and I like men more than I like women. They never had anything to say; they were boring.

Nationally, trends with hunting licensing are down. This is something that the larger culture is changing as more and more people no longer have the need for game, nor do they want the game. Many people complain about the “gamey” flavor of venison. Consumption of meat has not gone down in America, but the amount of meat that comes from hunting has drastically gone down. As even the one student participant showed, hunting connects people to the land around them. People become more aware of seasons, migrations, and habitats with hunting. The loss of this from the culture alarmed many of the lifelong residents. However, it was split amongst them. Some of them lamented the loss of hunting; others viewed it too expensive for the license and too much time and hard work when you could easily buy beef at the market.

Arroyo Grande has a history of hunting, resulting in migration (Figure 4.9). The first mission in San Luis Obispo was founded after northern missions were having food shortages. The Padres remembered an abundance of bears in the Arroyo Grande Valley and sent a party down to bring back bear meat. One trapper was said to have killed over 300 hundred bears in the valley in a one year time span (Saari, 2009). Sea otters were
Early hunters in the Arroyo Grande Valley. Date unknown. Photo courtesy of South County Historical Society.

hunted to extinction, later reintroduced, due to pressures from outside the area and the demand for fur pelts.

This same mentality was found in agricultural land being subdivided and houses going up on it. Some of them really regretted the loss of the land. They saw this as not sustainable because how could they grow food if houses covered all the good soil. Others believed that it was the landowner’s right to choose if they wanted to grow food or build houses on it and they were upset at government intrusion into private decision-making. A few of them spoke about how agricultural land cannot be too close to residential areas because they need buffers to keep pesticides from drifting over to residential areas. When asked about a greenbelt system along the creek, most agreed that the landowners, mostly
of it being agricultural land, would not go for it because the public would then become more aware of their spraying methods and demand changes. They all agreed that it was impossible to make a good living as a farmer now.

**Economics**

**Depression and World War II**

A common theme echoed through the interviews had to do with money—usually, not having enough of it. Money has an interesting place in culture. Because it is a national currency, it carries a national culture with it; however, this was not as true during the lives of the lifelong residents. In some ways, the lack of money united people. There seemed to be less of a class system because all were feeling the same effects. As already mentioned, many of them traded goods with each other during hard times.

We didn’t have any of that stuff. Of course we grew up during the Depression when nobody had any money. Everybody around here had plenty to eat because we grew a lot of it, traded with neighbors and it was just a different lifestyle.

Because everyone was feeling the repercussions of the Depression and WWII, they were all poor and struggling to survive. This all started to change during the war and after. As one person said, “World War Two changed everything. Before, nobody hardly left the area.” Most of the men were shipped off to strange new locations. This was happening all over the country. People who had never been more than a few miles from where they were born, were shipped to the South Pacific or over to Europe. The world opened up for people. With the war, the economy boomed. This new economy changed the way people lived. One resident, when talking about the summer camps they had up the canyon said they continued to go up there “until WWII, at which time, business got
real good, they bought new cars, and weren’t going up to El Campo anymore…might
scratch their fenders.”

During the Depression, a time when many people migrated to California,
everyone was hurting. The residents of Arroyo Grande felt they had it much better than
most of the rest of America.

We always had plenty of cheese, plenty of butter, plenty of milk, and my
mother used to have rabbits and chickens, venison. We never starved. We
always had plenty of food. Of course, a lot of the people didn’t have.

Because the area was very fertile and everyone came together to grow things, the
community held together during this time. People repaired what they had. One person
told a story about saving all the nails used and bending them straight on an anvil and they
never wasted a piece of wood. Another person told a story about darning socks. “I had to
take a light bulb with needle and thread and fix the stockings. Now you go to Costco, you
go get a big pack. Back in those days you had to repair.” There was no mention of
anyone else being much better off than another person. There were a few stories about
migrant workers’ kids showing up in school without shoes and the community coming
together to help get them shoes, but most people were not much better off.

And, huh, but like I said nothing real serious and everybody was poor and it didn’t seem to bother; you went to school and in the summer time you went barefoot to school. Uh, you had a pair of overalls to wear to school. The girls didn’t have fancy dresses and didn’t change dresses. Some of the girls wore the same dress every day of the week.

Nobody had TV and the pressures from outside were not felt the same way they
are now. In many ways, the most important culture was the local culture and the national
identity was not as strong. Not only did most people not know much more than what was
told in the news about far away places, most people did not travel to other destinations.
**Travel**

One of the main phenomena found in the data from surveys from students was how often they had their memorable experiences at a destination. I say destination because it is a known place where many people would go. One of the leading destinations was Yosemite.

With 39 students choosing a destination such as Yosemite, Sequoia, or Hawaii as their places, it was one of the most common threads in their responses (Table 4.2). This was juxtaposed against the lifelong residents who specifically spoke about not travelling. Of course, most of their responses had to do with economics. As one lifelong resident said:

> Never went far out of town; never remember going to Santa Barbara. Mainly up to Morro Bay, Salinas, Pinnacles, and that is about it. Six of us kids, we weren’t flush with dollars and cents.

<table>
<thead>
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<th>Table 4.2.</th>
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<tr>
<td><strong>Frequency of Student Participants Reporting Memorable Experiences at Large Public Destination Such as Yosemite, Hawaii, or Sequoia</strong></td>
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<tr>
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<td>Total</td>
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Another lifelong resident said, “I think most of the things we did, we made up as we went along. That was during the Depression and there wasn’t a lot of running out of town.” Although it could be true that the younger generation views nature as somewhere away from where they are, that was not the overwhelming response. People did view nature in their backyards, or grandparents’ houses; however, for 22%, nature was at some known destination. The National Parks were created in part to create a national identity. Yosemite was a model for a park that could represent the grandeur of the United States; however, none of the lifelong residents mentioned it at all. It is hard to believe that they had not visited most of those parks once they were older. It is more about money.

But, you know, you got to remember, we are talking about mostly the 1930s and nobody had any money, nobody took vacations; now they go to Hawaii, Wyoming or whatever. We never took vacation. The men took it for deer season and would stay out there and hunt.

It was not that the lifelong residents did not want to take vacations or travel to far away lands, many of them told me stories about the places they had been. One of them got into hot air ballooning and travelled all over the world in hot air balloons; travelling to distant locations to enjoy nature was not part of the culture of their time. This was dictated by the economy and money. A few of them spoke briefly about trips to Los Angeles or trips to San Francisco both on the railroads. These were rare treats for them as children. For one of them, just riding the railroad 20-30 miles away to a neighboring town and back was as special as going to Hawaii.

While I did not collect information from the students about their parents’ wealth, it could be possible that the 20% of students who travelled to destinations for their early
experiences were better off economically. It is easy to see the disparity of wealth in the area now. Housing prices and sizes vary drastically within miles of each other.

Many of the lifelong residents talked about how the realty values changed. The places where homes are being built now are with ocean views, but when they were young, that was useless land nobody wanted. It was foggy and cold, the soil was no good, and there was no access to water. Now, million dollar homes are being built because they have an ocean view. The ocean has become a destination for people. Pismo Beach has always been this type of destination. Bugs Bunny, on his way to Pismo Beach, heading there for all the clams he could eat, used to get lost and always end up in Albuquerque. Dorthea Lange’s most famous picture from the Depression, “Migrant Mother,” was from this area. People have migrated here for many reasons for many years, and yet more of the students wrote about experiences in places like Yosemite than they did about Pismo Beach. The students saw nature in Yosemite more than even the beach at their homes.

My first time in Yosemite was my most memorable experience. I was 10 and my family went to Yosemite on a business trip for my mom. So while she was stuck in meetings, my father, brother, and I went out and saw what nature had to offer. We drove all over the park and enjoyed the sights nature had to offer. I remember the experience still and I will always have the memories to keep.

This is the place where nature has offerings. Strangely, they were driving around the park looking at nature through the window. Another students said, “Perhaps one of the few times I spent completely immersed in nature was a trip to Yosemite I took with the neighbor boys I had grown up with since infancy.” Though the student was a junior in high school when they went on this trip, it was the first time they felt “completely immersed” in nature. The same student goes on to say, “The air was clean and clear as
ever, and even though my hometown is a beach town, free of pollutants, I will never forget the active feeling of clean air, filling and exciting my lungs.”

The very initial purpose of Yosemite was to preserve something for all Americans to see. It was something that would help create a national identity, and it seems to have worked. Although the student can see that her/his own hometown is “free from pollutants,” a strange claim in itself to the view of what nature is supposed to be, they never felt the same immersion in nature as they did when in Yosemite. Meanwhile, Yosemite is one of the most heavily trafficked National Park in the system, with pollution problems, over-crowding, traffic, and more. As we already know from perceptions about crowding, truth is irrelevant. Certainly, Pismo Beach affords more seclusion and remote wild landscapes, but the perception is that Yosemite is where this really happens.

This is how culture works. The culture has put Yosemite as the pinnacle and representation of the “natural” world. And here is where the theory begins to become clearer for me. A larger culture, a culture that is larger than Arroyo Grande, is changing the perceptions of people about the values of land. Nature is something that happens at big parks in far away places, and our culture tells us these are valuable places to go to see nature, and this comes with a loss. The larger culture takes precedent over the local culture and people stopped seeing their own location as being “natural” anymore. The larger culture says that beachfront homes are valuable. The very word “nature” does not have the same meaning in the culture. Nature, as a meme, is represented by Yosemite.
Nostalgia

One of the main purposes of culture is to remember the past. Culture helps a society to learn from the past to know how to move forward. However, in my conversations, over and over again, I saw this nostalgia for the past. It was not just looking back to help look forward; it was looking back and wishing you still had those times. Along with that, I saw no signs of any of the lifelong residents looking to the future. A few of them mentioned that things were better and they did not want everything back, but over and over again, there emerged phenomena about the way they looked back. At first, I labeled this, “Things are different now” because I kept hearing them say this. A friend and colleague who helped to code the essays with me suggested this was nostalgia.

It is not like that anymore. You go down town back in those days you knew about everyone, everyone was friendly and slower life. Might have been a little bit more painful when you went to the dentist and they gave you the square needle.

The participants were people already prone to nostalgia since they were all members of the local historical society. Many of them were docents for tours around the museum and told stories to kids about how life used to be in Arroyo Grande, but they did see that certain things they did not want to let go. As one person said, “You don’t want to go full back. Think of refrigeration; you don’t want to do without that.” For the most part, people liked the technological achievements that came from a global society, but they did not like the repercussions.

We used to do that ourselves. My mom would bake stuff and we would go around giving it to Old Jake and people. Every Christmas, she took him a cake.
And another example:

You don’t have anyone watching out for anyone. The good Samaritan has been put away. You can call the county aid or meals on wheels. You don’t take them a meal when they are sick. I don’t know how you get that back.

For most of the lifelong residents, the sense of community and knowing each other was the greatest loss to them. They did not specifically get upset at how many people lived there, but that nobody knew anyone anymore. Their small town seemed filled with strangers.

You grow up in a small town you have a sense of community. A lot of those people are part of that experience. My folks always entertained, visited, a lot more interaction then, then now. People weren’t as busy as they are now…all the activities pull them away from homes and family.

A lot of the lifelong residents saw the lack of community, and yet when I asked them about potlucks or events where the whole community could come together, they did not have a lot to do with it. The town has an annual Harvest Festival that has been going on for over 100 years, and yet most of them either did not attend, or preferred to talk about how great it used to be. None of them organized any potlucks or entertained people either. Instead, as is true across the United States, people seemed to have what is called “stranger danger.”

It is funny, we never heard of these goofy guys that were around. I don’t remember my mother telling me to be careful of a guy, none of that went on, but parents are so paranoid about things like this, I guess they have a right to be. I don’t understand why there is so much of this now.

A lot of the people felt experiences with other people were not the same. They kept talking about all the people living in the area and how they did not know them, and the respect seemed to be gone.
When my grandfather purchased something, he went to Bank of Italy, became Bank of America, went to moneyman, and did the deal with handshake, the old fashion way. Grandparents never locked the house. This has deteriorated; in old AG, never thought about robbery. You trusted your neighbor.

To trust your neighbor is an interesting concept. Almost all of the lifelong residents knew all of their neighbors. How can you trust someone you do not know? When I asked some of the people living in the village if they knew most of their neighbors, they would say no. The people still living out in the country knew most of their neighbors, but even one of them told a long story about a new neighbor moving in and how the new neighbor treated him. He was worried because the neighbor did not take the time to get to know him before reacting about the way things had been.

This story, mostly about old fence lines, has a lot to do with culture. One of the many questions I have after this study is about the responsibility of new people joining a culture. When new people move into town, is it their responsibility to meet everyone, or is it the responsibility of the neighbors to come over and welcome a new person and explain the cultural norms of that area? Of course, it appears that both seem to fail in this situation. Part of this might be because we do not see culture as grounded in a location and we do not see that when we move into a new neighborhood, we are joining a new community, and with the new community comes new social norms and repertoires of that community. There is not only a language spoken amongst that culture, but a way of communicating within those cultures and new people need introductions. And yet, the American (or larger) culture seems to have taken precedence over local culture. Therefore, people move into towns and do not think about the community they are joining. Most things seem the same. Grocery stores are large national chains. Building
design and city trees are the same variety. Cars are the same; the clothes people wear
the same. Only the actual people are different.

One of the ideas shared by many users was the idea that kids needed to go out and
organize their own sports.

I know kids don’t have that now. Now everything is organized. I really
don’t think that is good for kids. They need to get out and do a little bit of
organizing themselves.

This is another type of social or cultural norm the lifelong residents felt was
important. I never thought to ask if any of them specifically showed kids how to make
their own games. Many of them did lament about their grandkids and kids and how
organized things were, but none of them stopped it either.

One of the limitations to the study has to do with asking more middle-aged people
about their thoughts and activities. It seems nostalgia has more to do with age. Because I
had not thought about the role culture might play in this study, I had missed some
opportunities. Better pretesting might have cleared some this up. It seems that people
become nostalgic for the lost culture only after it is gone. While the lifelong residents
were lamenting the lost culture they had, they did not speak about
how they had worked to preserve that culture when they were younger. They were of
course actively working to save the culture now, but more as part of history as members
in the local historical society. It seems many of them did not think about this as part of
their culture. Not at the time. That was just the way things were. Many of them spoke
about their childhood as a product of their time, and not a product of their culture. It
seems the same is going on now. Rather than work to preserve something as part of the
culture of the place, it is turned into history as something from a time period. This is one
of the areas where I found hypotheses for future research. Do cultures with active awareness of passing down knowledge not have as much nostalgia? Is nostalgia a product of losing culture? Are people aware of what traditions they are passing down?

**Family**

Another noted phenomenon in the data from the student responses was the frequency in which family was present during the memorable experience in nature. One hundred nineteen out of one hundred seventy-five valid responses were with family members (Table 4.3). Twenty-three of those experiences were with the father and the mother not mentioned, while only four experiences happened with the mother and the father not mentioned.

Introducing kids to nature is predominately the responsibility of family (Cheng & Monroe, 2012; Kals, Schumacher, & Montada, 1999). Of course this is expected since most of these experiences happened at a young age. What was not expected was the predominance of experiences outside and in nature happening with fathers or other important males such as uncles or grandfathers. This was highlighted even more in the interviews with lifelong residents.

One of the highlights of my youth, one of the things I think of often. My dad he had some varied interest, one of which was not hunting. He did tolerate a fishing trip. Fondest memory with him was right here in the AG creek trout fishing.

Again and again, the lifelong residents, when asked about nature, turned to their fathers.

We did a lot of camping, of course, my dad, if you ever talk to my dad, he’s always on the go; we were always camping or driving or camping, or
Table 4.3.

Frequency of Student Participants Reporting Memorable Experiences With a Family Member Present

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<th>Frequency</th>
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<td>2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>179</td>
<td>100.0</td>
<td>100.0</td>
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</table>

we were always doing something. But, yeah, to me that was probably our life as young kids, was doing some form of recreation, mostly outdoors, and then, you know, either organized by my dad, or when we were alone, we would still do them on our own, walk down to the creek with our fishing poles.

Of course, a lot of this had to do with social norms of the time. Men were usually outside working and women inside cooking and cleaning. As one female participant said, “Typical day was getting away from working in the house, outside working, helping my dad.” Although she said the inside work was typical of work for women, she wanted to be outside even if it meant people called her “a tomboy.”

Religion

One of the last observations is not phenomena, but the lack of a phenomenon. Because this idea of culture emerged from the data, I had to look at the other aspects that
make up culture and see how these fit. One concept that was glaringly missing from
the conversation was religion. In fact, there was only one mention of God in the entire
student writing and that was to make a simile about how trees arched over the road. The
participant wrote, “Their branches and leaves canopied over the road like a tunnel made
for God.” While nature has not and is not always connected to the sacred domain, the
metaphors we use to describe and talk about nature quite often reach into the ecclesiastic
realm. Nature can be spiritual. For many, religion came about as a way to make sense of
the ways nature worked. In fact, I had expectations to hear people write about the spirit
and soul found in nature, but there were none.

Many people have written about religion’s role in understanding nature, and the
way religion slowly was put almost opposite of the hedonistic or satanic wilderness.
Nash’s (1967) book on wilderness analyzes the way nature has morphed from religion,
away from religion, and back again. With the rise of the transcendentalist movement,
people have been coming back to nature to seek the spirit, and yet there was only the one
mention of anyone using those words. While people have often referred to Yosemite as a
place of gods, the rocks like cathedrals, nobody spoke or wrote about nature in this way
from all participants. There were five essays that mentioned the feeling of “awe” while in
nature, but no use of Christ, sacred, holy, spirituality, or anything else. Surely, some of
the best writing about nature is that which sees the holy and sacred in nature. And yet,
this type of description is starkly missing in the language and stories the students tell
about nature. The same is also true with the older generations from the lifelong residents.
If they were to use the word “God,” it was to say, “Oh god, yes.” They too never spoke
about nature using spiritual words. While the younger participants did feel mystery and
awe in nature, the lifelong residents never spoke about nature with that feeling over
other. To them, it was part of their life.

For the students, nature was out there. It was in other places and away from their
everyday life. For the lifelong residents, nature was daily and a part of their existence.
While I would have expected both to use the metaphors of spirituality to describe nature,
this was all but totally missing from the language. Part of this might be from people
having a lack of awe from nature. Many people think science has figured most of it out.
There seems to be no mystery in nature. Without mystery, people do not need spiritual
explanations to understand or make sense of things. Some of this might also come from
the specialization of knowledge found in modern culture. People assume someone else
already has the knowledge, even if they do not know a person with the knowledge
specifically. This might be a product of too large of populations.

It might have been good to ask participants if they felt they were religious or
spiritual people to get a better idea of the connections between nature and religion.

Conclusion

In Grounded Research Methodology, after many times through notes, transcripts,
photos, and literature review, I kept seeing the way culture seemed to come out through
the phenomena identified. While I was initially trying to understand how language
changed through time, I kept seeing it was not language, but culture that shifted and
language followed. Language is an intricate part of culture. Everything that makes up a
culture happens because of the ability to pass and share ideas.
In my research, the tool or tradition of the creek leaving the culture is made noticeable by the disappearance of the creek in the language of the students. The tradition of playing in the creek is gone. Those values were there in the local culture, but something took it away. The lifelong resident still talked about the creek and their past, so the memory was still there, but the younger generations were not playing in the creek, and I noticed that through analysis of their language. Of course, I backed that up through hikes in the creek to see that there was no evidence of anyone playing in the creek either. Nonetheless, I found this out by looking at written responses from the kids.

As new culture moves into an area that is reflected in the language. Language adapts to new cultural ideas moving into an area. One of the prime examples from history in the area was the *tomol* canoe, or sewn canoe used by the Chumash people (Klar & Jones, 2005). The canoe is theorized to come from Polynesian people and that influence is reflected in the word used too. This is seen all over the world. New technologies usually come with words and the culture adapts some version of that word from where the technology came. I started to look at the difference between a local culture, and a national, or American, culture. Of course the current large culture might be considered larger than “American.” It could in fact be more about a mass media culture.

The most important and significant category was water. Every single one of the lifelong residents spoke about how important the local creek was to them growing up. They played in it, fished in it, swam in it, and spent long hours along the banks. It was the most important place for the lifelong residents. And writing about the creek in the students’ essays was almost non-existent. And after hiking the creek and seeing the current state of the creek, I can understand why there is very little interaction with it.
Because the creek was shockingly gone from the conversation, it shaped most of the way I began to think about the research. After speaking with many people, I came to the realization that the change happened because of technological changes to how humans interact with water across America. The Lopez Dam brought clean water right to the houses of the residents, while also managing floods from causing damage. The lifelong residents had lots of experiences with the creek, and they thought it was very important, and still the creek is currently neglected and overgrown.

Food was the next largest category for the lifelong residents. They all spoke about working on the farm with parents, hunting the local mountains, and fishing the local streams. Once again, this was not present, except once or twice, amongst the student writing. The lifelong residents milked cows, bailed hay, harvested broccoli, picked apricots, and more. They all had intimate lives close to agriculture, farming, and hunting.

The third major category was economics. Most of the lifelong residents spoke about being poor, and how everyone was in the same situation. There was solidarity in how everyone suffered from being poor. They were frugal, or at least perceived themselves as being frugal. They did not have money to travel outside the area, and that was not as important, partly because nobody else was doing it either.

For the students, a large percentage of them wrote about their earliest experience in nature at some destination. They went to Yosemite National Park as one of the top destinations. Of course, they were in nature earlier, but their perception of nature was that of the park. Quite often, for the students, nature was away from the home. It was not something they walked or rode a bike to visit; nature was a vacation or destination. Very few of the students wrote about experiences in their own backyards or neighborhoods.
Nature was a place you travelled to go see. The meaning of the word nature has changed in the culture. While nature has always meant something in opposition to human things, the distance away from human things seems to have increased. For the lifelong residents, nature was something close and intimate into their lives when they were younger; however, they too seem to see nature now as something gone from the area. We see nature as being in parks and wilderness areas; however, more people are beginning to understand that our parks and even our wilderness areas are human constructs.

Nonetheless, the lifelong residents were nostalgic for the loss, and while there had been definite landscape changes made, it is not something completely, physically gone. The creek still runs through town, native oak trees still grow in backyards, some older than any of the lifelong residents. In fact, one person I interviewed had an oak tree in their backyard that three generations of her family had climbed, and they spoke about imagining native Chumash people climbing the same tree.

Nostalgia was a trickier category. Over and over again the lifelong residents kept talking about how things used to be. They talked about the past as something that was gone. They seemed nostalgic for the way things used to be. One of the limitations of the study was that I did not interview more middle-aged people from the area to see what they were thinking. Nostalgia must have a role in maintaining culture; however, it seems to be mostly carried by older people. This becomes more important when thinking about how the family and home has shifted and the roles grandparents play in the everyday lives of grandchildren. Nostalgia must be an important part of preserving culture. It is possible that nostalgia keeps cultures from changing too quickly. For a culture to adapt
too quickly might also put that culture at risk. Nostalgia might play a role in maintaining connections to cultural history.

The last major category found in the data was family. Most all experiences in nature happened with family. Men were found to be present more than women. While this once again could only be a perception, it appears that men were looked towards for experiences outside. For the lifelong residents, men were the ones who worked with the animals and gardens and fields. They went hunting and fishing. The men took the family camping. While the reality of this might not be true (surely the mothers and grandmothers had equal parts to the process) the perception from the lifelong residents was to look towards the father. The father was a storehouse of cultural knowledge about nature.

In the student essays, this was echoed. The father or other significant men in the students’ lives took them to explore outside. Men took them camping, fishing, to the parks, or to the beach. While certainly more men pursue recreational activities dealing with the out-of-doors, the expectation was to see many more women, mothers, aunts, and grandmothers taking kids to do things outside in the younger generations. Nonetheless, this was not true. Some of the early experiences the students wrote about were first-time camping with the entire family, and never going back again. There are still cultural expectations from men, and perceptions about that, but it is difficult to know what is true about that.

Lastly, after seeing this pattern of culture and cultural evolution, I started to think about what was missing. Our common definition of culture almost always has some connection to religion. Religion is typically spiritual ceremonies passed down and shared within the culture. Often, nature and religion are mixed too. Religions frequently see the
transcendence of a creator in nature’s design. However, there was absolutely zero use of any words from either the lifelong residents or the students about feeling spiritual in nature. There was use of words like peace and tranquility. People found calmness in nature. They felt in awe and sometimes even terror when in nature. Looking at biological and cultural context for religion, it seems plausible that those are the same feelings that gave rise to the metaphors, and parables of religion from nature.
CHAPTER V
DISCUSSION

Introduction

The purpose of this dissertation research was to use Grounded theory methodology to look for theories about language, ecosystem knowledge, and behavior in the Arroyo Grande Valley. Through semi-structured interviews with lifelong residents, essays from high school juniors and seniors, archival work with South County Historical Society, informal interviews with key informants, and exploring the local ecosystems, the theory of cultural entropy emerged. Along with the inductive process of theory-building came a potential policy recommendation for changing behavior, sustaining, if not building local economy, while also reconnecting people to the local ecosystem and cultural history by creating an interpretive greenbelt system along the Arroyo Grande Creek. Because the creek, as a past meme for the different cultures once living alongside the Arroyo Grande Creek, is currently lost from the language of people living there, a greenbelt has the potential to reintroduce a meme back into the culture along with positive community sustainability possibilities.

Culture

Culture, in the Arroyo Grande Valley, has had a few major changes. The first wave of migration began when the ancestors to the Chumash Native Americans came to the area. Most of this early culture is not known. The language is considered an “isolate” (Jones & Klar, 2007). The Chumash language is not directly related to any of their
historic geographic neighbors. There is linguistic and technological evidence to suggest Polynesian cultural exchange happened eventually because of the sewn plank canoe the Chumash called the *tomol* (Klar & Jones, 2005). Some accounts state disease probably reached the Chumash culture prior to actual European contact. Regardless, the Chumash settled into the area along the Arroyo Grande Creek because of the availability of fresh water and food.

The construction of the mission in San Luis Obispo roughly 15 miles to the north brought a different religion and agriculture to the area. Many of the Chumash left their villages to live on or near the mission (Perry et al., 1986). While it is theorized that Polynesian culture changed the Chumash culture by introducing different technologies, the Spanish culture brought organized agriculture, religion, architecture, tools, and irrigation ditches (Hundley, 2001).

Francis Zeba Branch came to the area after obtaining a Mexican Land Grant. He brought cattle to the area for grazing. He cleared the swampy alluvial plain to make way for grazing and crops. He sold land to people who helped him clear out the *monte* (Saari, 2009). With European settlers came all the tools and language of Europe. However, some of this culture was not different even from the ancient Chumash. One example is money. The Chumash were known to have an elaborate system of money using shells from the Olivella snail (*Olivella biplicata*). These sea snails were traded from the Channel Island Chumash and were prized across the Central Coast (Perry et al., 1986).

Spain brought with it water irrigation, customs, and laws that had “evolved over generations” (Hundley, 2001, p. 30). Water was allotted as was appropriate to the need. When a land was conquered, the King usually kept the existing rights as a “way of
winning their loyalty” to the crown (p. 31). In settlement of California, and to lure the
Indians to the mission and pueblos, land grants were given to individuals, but not the
water. “Under Spanish Law, water in a municipality did not belong to separate
individuals, but rather passed from the monarch to the entire community as a corporate
body” (pp. 39-40). The Plan of Pitic specifically laid the ground for water as a “common”
resource. Power for decisions was given to a town council.

A typical pattern would find water diverted by a dam or lifted by a noria
(or waterwheel) into the zanja madre of a mission, presidio, or pueblo. From there it might be channeled to a gristmill and then to a reservoir
settling basin from which it would pass through a filter on its way to a
public fountain, next to a lavanderia, and from there perhaps to a pottery
or tannery. Drainage would then be filtered before being diverted onto the
fields. (p. 45).

The Treaty of Guadalupe-Hidalgo specifically guaranteed that the Spanish land
grants and pueblos were recognized by the United States (albeit after some lengthy court
battles for some). Francis Ziba Branch, the person who once owned most of the Arroyo
Grande Watershed spoke English, was from New York, and did not have any other
people close by contesting his land, and he still ended up in court many times proving the
ownership of his land (Saari, 2009).

Nonetheless, water became a resource a person could take control of and own.
While Chumash weaved baskets for carrying water as needed, they did not ever live too
far from the natural flowing creeks. Tribes were located along watersheds. With the
Spanish came the possibility to move massive amounts of water and the ability to control
where people lived and what crops they could grow. As new words entered into the
language, so did ideas about resource management. Instead of hunting and gathering, the
population cultivated and grew. Land was fenced off, water rerouted, and new tools carried into the ecosystem.

Perhaps no greater technological change came to the Arroyo Grande than that of the dam on the creek. The Army Corp of Engineers first proposed the idea of the dam in 1917, but the reality of the dam took many years. In 1965, voters agreed upon a twelve million dollar bond to pay for the construction of the dam. Finally, Lopez Dam was finished in 1969, just prior to record rainfall that filled the lake to capacity that same year. The construction of the dam had a few major purposes. The dam provided drinking water for residents of the Five-Cities area. The dam created a recreational area for both camping and lake activities. The dam helped reduce flooding by controlling the flow of the Arroyo Grande Creek. And the dam also helped to recharge the groundwater supplies for local wells. The dam specifically was used to control flow and not waste water by “having it flow into the ocean” (R. Brown, 2002, p. 53).

Culture has been continuously changing the landscape. Human ability to share culture has increased each time along with population. All culture, like non-native pioneer species, comes from outside and colonizes the area; however, each new culture seems to increasingly disconnect from the ecological knowledge of that area. Before humans ever arrived in the area, the creation of the Panama Isthmus opened up massive migration routes of non-native species into North America from the south. The introduction of new species drastically changes the landscape. With the dam came a huge change in the way the river was not only used, but also viewed. The river incised into a deep channel, and both native and non-native plants encroached along the banks. Although all of the residents who lived there prior to the dam enjoyed playing in the
creek and said it was one of the most important physical features of their youth, these
same experiences are gone amongst the current youth in the area. After hiking the entire
length of the creek, I found very little sign of anyone recreating in the creek. The creek,
as a recreational location, has left the current culture. A technology came from outside
the area and was implemented to the local ecosystem without having full knowledge of
what that would do to diminish the health of the ecosystem.

Even though the older generations speak with nostalgia about the creek and have
cognitive knowledge about it, the creek has not been preserved. When it comes to
language and thought, it is difficult to know why the creek has fully left the culture. Did
people first stop thinking about the creek because they no longer had to fear flooding, or
go fishing, or collect water? Did the usefulness of the creek as part of the everyday
language leave the culture, and therefore people stopped thinking about it? This is not
something this research was able to fully address. However, there are connections. The
creek has surely left the language and thought of the youth in the area. While it is still in
the thought of the older generations, preservation of that resource is not a priority for the
current culture. The creek itself is ecologically damaged. It is overgrown and
inaccessible. It is polluted from agricultural run-off, and the steelhead populations were
completely decimated. While there have been massive efforts towards reintroducing
steelhead, none have been successful due to current obstructions and management of
water flow techniques. In fact, the Central Coast Ambient Monitoring Program, part of
the California Environmental Protection Agency, lists the Arroyo Grande Creek as
severely impacted, especially at the lagoon, for most of the analytic tools used for
measuring the health of the creek ("Central Coast Ambient Monitoring Program," 2014).
In a very short time when looking at the total length of time humans have inhabited this location, less than 50 years out of over 2,000 years (and possibly much longer) of human habitation, the creek has left the culture. While this research cannot predict how the younger generations will engage with their community, the data does suggest that the creek was extremely important to the lifelong residents who are actively engaged in their community currently, and the creek is no longer an active part of the lives of the youth in this area.

If, as Sapir once said, language is the guide to “social reality” (1929, p. 209), then the social reality of this area is that the creek, as meme for the culture, is drastically diminished currently. And yet, the physical reality remains that the creek is one of the most important facets of life in the area. Although money from tourism to go to the beach has gained significantly, agriculture remains as one of the key economic drivers for the area.

If memes are the storehouse of culture, then the creek, as a meme, has almost left the culture. And yet, in the creek is a rich history of the area. Most of the biological and cultural history of the area has been centered on the local watershed. To lose this meme in the culture is to lose history. And the research supports that early childhood experiences in nature are one of the most important influences towards pro-environmental attitudes and behaviors (Chawla, 1999, 2006a,b; Gough, 1999; Payne, 1999). Without these significant life experiences with this important meme in the culture, how can the younger generation be expected to make wise policy decisions to continue to protect and sustain life in this area? Place attachment theory shows three types of bonds connecting people to place (Scannell & Gifford, 2010a). These bonds are cognitive,
behavioral, and emotional. We connect to place through knowledge, through our actions and hobbies, and through emotional experiences with friends and families. To have place attachment, people must have cultural, environmental, and historical knowledge about the place. If not this, then people must have bonds around recreation or usage of the place. If not this, then people must have personal and intimate connection to the location. Currently, these bonds are not forming with the Arroyo Grande Creek. While there is civic place attachment to Arroyo Grande as found by the members of the South County Historical Society, nature place attachment, which leads towards pro-environmental behavior (Scannell & Gifford, 2010b), is not present in the community. The language of the river is not passed down. While the older generations did identify the creek as being the earliest and fondest memories in nature when young, it did not do enough to create pro-environmental behaviors towards preserving the creek. The new museum, built and funded by many of the lifelong residents, around the creek in the old village has zero access to the creek. And while the old millstone is on display at the museum like a monument, there seems to be little recognition that it was water that turned the mill.

A lot of the high school participants saw nature as something away from the area, something in National Parks such as Yosemite. As Gadamer (2000b) said, there must be a “with-one-another” for tool use to make sense to people (p. 26). The ultimate tool within the area was the creek and how the creek was used to permit humans to live there. There is no shared experience with the use of this tool now in the area.

Not only have the denotative meanings of the creek been lost, where people do not realize the creek is even there, all the connotative meanings are reduced too. Kellert
(1993) hypothesized nine “dimensions of the biophilia tendency (p. 44). Some of these values are seen as positive such as aesthetic, humanistic, and moralistic, but he also included negativistic which is “characterized by sentiments of fear, aversion, and antipathy” (p. 56). The creek meant death and the possibility of flooding. It could have meant destruction and devastation. Those were mediated through the dam, but so were the other ones, the ones that represented play, and imagination, and the changing seasons with fish migrations as steelhead spawned in the creek. Not only were negativistic values reduced, so were moralistic, naturalistic, and ecologistic-scientific. If everything is connected, then changes in one value can affect other values.

The type of economy on the Central Coast has changed. While agriculture and tourism have been important, in some ways, since humans first came to California, the type of tourism and agriculture have changed with a changing American culture. Tourism is a driving economic force for the entire area. Most of the tourism centers on the Oceano Dunes State Vehicular Recreation Area with an estimated overall economic impact of $171M to the area ("Ocean Dune SVRA: Economic impact analysis report 2010-2011," 2011). The other quickly growing sector is the wine industry. The California wine industry is a $61 billion dollar industry with the Central Coast making up around 7% of the total grape crush each year and growing ("California Wine Profile 2012," 2012; Volpe, Green, Heien, & Howitt, 2010). While tourism to the beach has always been an attraction, wine-grape production started the same time the Lopez Dam was completed. Acreage went from under 1000 harvested acres in 1970 to well over 35,000 harvest acres currently with an estimated crop value of over $200 million ("Historical winegrape production statistics," 2014). Wine grapes are currently the top-producing crop on the
Central Coast, with strawberries a close second. Overall, agriculture has an estimated economic contribution of $1.87 billion to the entire county ("Economic Contributions of San Luis Obispo County Agriculture," 2013).

Nonetheless, both tourism and agriculture (specifically the wine industry) rely on outside cultures. While wine grapes can use up to 30% less water than other traditional crops grown in the area such as strawberries, they rely on demand and an export market (Volpe et al., 2010). The tourism to the Oceano Dunes is made up of over 80% ATV, or all-terrain vehicle users coming from outside the local area ("Ocean Dune SVRA: Economic Impact Analysis Report 2010-2011," 2011). Neither of these are sustainable local economies. While I did visit some vineyards using integrated pest management and reducing water consumption or using dry farming techniques, this is not the majority. Also, large swathes of the Ocean Dunes Complex have been set aside from ATV travel, specifically for Snowy Plover protection, although this policy is tenuous. Citizens without ecological, historical, and cultural knowledge cannot make informed decisions dealing specifically with the sustainability of the local area. Policy models typically start with identified need (Wellman & Propst, 2004); however, if the citizens do not have knowledge about the importance of the local watershed, they cannot make policy in order to preserve the resource.

An identified need begins with it being culturally relevant. To be culturally relevant it must be a valued meme in the culture. However, the pressures from other cultures have come into the area and radically changed the behaviors and knowledge of the area. The ocean had always been a utilitarian place for food and is now seen mostly as a place for recreation. A few select large-scale farms do agriculture and most of the
product is exported out of the area. People rarely hunt for food anymore. In the 1950s, over 600,000 hunting licenses were sold each year (“US Fish and Wildlife Service National Hunting License Report,” 2004). In 2013, fewer than 300,000 were sold (“US Fish and Wildlife Report National Hunting License Report,” 2013). Meat is purchased at chain grocery stores. Economics have drastically changed the area.

There is a great division in wealth across the area. The Great Depression and World War II brought new waves of immigrants to California and introduced people to ideas from around the world. The young men were shipped off to live and learn about other cultures and brought some of these ideas back with them to the area when they returned from war. More and more people travel for vacation. There is a rise in nostalgia for older times. As Batcho (2013) stated, “Longing for the past is particularly relevant as people struggle for a sense of continuity in a rapidly shifting landscape of their personal and social lives” (p. 173). As the physical and socio-economic landscape shifts, the community struggles for continuity and begin to long back to the way things once were. The rise of nostalgia in America might be due to how quickly those cultures that were specific to location were lost. The research on nostalgia states that it is a longing for home. And it has something to do with a continuity of identity (Wilson, 1999). We become nostalgic for places and times important to who we are and what made us.

**Integration of Research into Field of Sustainability**

Culture sustains humans. Humans created culture and passed down the knowledge to allow humans to live in different ecosystems. Cultural entropy makes a few assumptions. First, no culture is a complete isolate. All cultures are connected either
directly by human crossover from geographical boundaries, or from environmental changes caused to the entire earth ecosystem. The earth is a system in constant flux.

Culture is a biological response to complexity and change. It is essentially metacognitive and hermeneutic in the sense that it is self-reflective and interpretive. The more humans attempt to understand and interpret the interconnectedness of life on earth, this understanding and interpretation shapes and changes the thing at which they are looking. Each theory, each hypothesis, and each question changes and shapes culture. Scientist, as objective outsider, is not possible.

Entropy is the amount of energy in a system unavailable for work. Energy flows through a system heading towards thermal energy. Thermal energy spreads out across the expanding universe making less work readily available. Once energy is converted to heat, the ability to take that storage of heat and convert back to work is drastically diminished.

This is not to say cultural entropy is bad, but that cultural entropy tends towards cultural and ecological homogeneity. This can be explained by thinking about a drop of dye in a glass of water and how it equally spreads out never to become the unmingled drop again. The diluted dye is not worse than the consolidated dye, but the ability to return to the consolidated state is increasingly difficult. The rate culture changes has exponentially increased over the last half-century. If culture evolved from the earth’s ecosystem as a mechanism of adaptation to allow a species to move into ecosystems too formidable without culture, eventually creating tools by which to make the ecosystem habitable, the knowledge and experience from which those tools emerged slowly leaves the culture. Tools represent years of evolution, but the tool does not carry the history of its invention—the long trial and errors made. Culture holds onto, or lets go of, this
knowledge. When new tools come into new areas, they come with basic applications, but not the long rich history of invention. These tools emerge, not through the system, but from outside the system. Sometimes the original intent behind an invention is long lost to current cultural uses of the tool. The tools seem to appear as a manifestation without experimentation. Did the Chumash question the sewn plank canoe when introduced to their culture, or simply realize the advantage and take the tool without regard to what might have been lost? Was there nostalgia for whatever knowledge of canoes was there before, the canoe crafted out from the knowledge the people gained as they evolved alongside the place?

Cultural entropy means a predominant culture in a location is void of place-specific knowledge. The culture allows humans to live in the area, but it comes with a lack of any knowledge about the ecosystem and culture in which they live. In Arroyo Grande, people traded the local steelhead fisheries and other anadromous fish, lost the movement of sediment and flooding that helped create the rich topsoil for agriculture, but gained the safety of the dam to prevent flooding and a secure drinking water system. It permitted more growth in the area.

One of the things culture does is provide knowledge to keep humans from destroying the environment while allowing humans to live there. However, one definition of sustainability is to make decisions looking many generations back and forward. In some ways, this is the core of what it means to be sustainable. Humans, moving into a new ecosystem, are inherently disruptive to the ecosystem, but culture develops over centuries of living in the ecosystem as people learn from trial and error to not disrupt the natural cycle.
Humans slowly migrated across the United States developing cultures that enabled their coexistence within new ecosystems. They surely made mistakes along the way, introduced invasive species, hunted to extinction others, and altered the environment to suit the needs of technology they brought with them. Humans modified the environment, such as using fire to make hunting easier or encouraging the growth of certain plants they found more valuable. However, this knowledge came over centuries of passed down storytelling. Any new species introduced into a local ecosystem, especially humans, will be disruptive to the cycle already in place. Disruption threatens their own health and well-being. It is up to humans to develop a culture to join the web of life in that area with minimal destruction. Sustainability means having a healthy, integrated cultural system. Mistakes will be made every time a new piece of technology enters into the culture. It is up to the culture to evolve in order to minimize destructive force of the new technology and develop rituals, customs, languages, and such to incorporate new technology, hopefully finding ways the new technology will not only minimize destruction, but actually help build and/or support the local ecosystem better. This has a lot to do with blending memes and building connections between the new technology and the current culture.

If culture is a response to complexity and a method for sharing complex data about a shifting world and allowing humans to adapt quicker to changing environmental circumstances, then a single global culture is inevitable because of the interconnectedness of the earth system. However, the global culture must recognize the differing regional ecosystems of the world. The tools of our culture are allowing us to come together in ways not imaginable a few decades earlier. The sort of speed at which humans create and
share tools is viral. With YouTube videos and kickstarter funds, ideas can spread across the world in a matter of hours. Although there is no proof to say this sort of viral exchange of ideas and tools across geographic boundaries is negative, there is a parallel rise in environmental degradation and place-specific disconnection.

Perhaps there are two opposing ideas at work. One is that humans are slowly removing themselves from the ecosystem. Humans can learn to tread with an almost imperceptible footprint upon the ecosystem. They act like zookeepers of planet earth. While this might seem incredibly far-fetched when currently looking at the negative impacts our existence creates on earth, our technological advances could eventually lead towards interstellar travel, mining of resources from other planets and other galaxies, perhaps even having the ability to move planets into orbit around stars similar to earth, and managing earth more like a nature preserve. The energy potential out in the universe dwarves anything we can fully imagine now, but the possibility of harnessing the power of orbiting planets or even black holes is there as an idea. People might guffaw at the idea of humans not leaving footprints upon the landscape; however, it is not an impossible reality. It is a reality that looks many generations into our future.

The other end of the spectrum is where humans learn to celebrate local ecosystems and rather than try to live outside of the ecosystem, they factor in all the energy inputs and waste outputs of existence, and try to balance those within designated local ecosystems. For me, this makes the most sense currently. Understanding that we are all members of communities, and those rings of communities ripple out into larger and larger communities as interconnected rings. While the regulating of community input and output of energy, carbon, and water might seem like a bureaucratic nightmare, it would
take a large amount of social and personal responsibility from citizens to make these changes. An education that promotes civic engagement, and social and personal responsibility, alongside ecological literacy, should be emphasized.

If local knowledge of ecosystems is important, then a culture that respects and preserves ecosystem literacy while sustaining human life is important. Basically, if biodiversity is important, and cultural diversity is important, then bringing these two things together is also important. The idea of cultural entropy could be part of all major sustainability education, green business, social change, corporate environmentalism, economics, sustainable design, sustainable development, sustainable manufacturing, environmental engineering, and more. If to be sustainable is to also sustain or even create, where needed, a culture that celebrates local ecosystem literacy, then the principles of local culture must be thought about when it comes to education, such as place-based education; design must incorporate local ecosystems; and manufacturing must be sensitive to how it is used in different cultures or even to build a new culture.

Sustainability needs a knowledgeable and active citizenry. Citizens must have early experiences within their local ecosystems learning about the rich ecological, cultural, and historical knowledge of that area.

Research about sustainability, including surveys having to do with rating sustainability attitudes, knowledge, or behaviors, must encapsulate questions about local ecosystem and cultural practices involved with local landscapes. It is not enough to be carbon neutral; communities must understand the movement of carbon within their local ecosystems, including how carbon moves through their local community. Identity is part
of culture, but it is not enough to have an eco-identity, the eco-identity must be grounded in a location.

Local environmental histories of areas would help increase cultural memories of how the environment has been shaped by human involvement over the course of human habitation in that landscape. Histories focusing on resource use over time, as a product of cultural diffusion, would help communities have a richer history of resource use from which to make decisions.

Lastly, because the NEP scale was removed in the analysis after repeated complaints from lifelong residents about the questions (one person refused to even answer them), I identified a strong need for a quantitative scale about sustainability attitudes and behaviors. I have already started research and scale development towards this end.

**Action Research**

**Greenbelt**

If a child is to keep alive his inborn sense of wonder without any such gift from the fairies, he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement and mystery of the world we live in. (Carson, 1965, p. 55)

I started this research thinking it would help me create curriculum for local environmental education providers. However, thinking about a policy process model, there is a socially constructed need. Wellman and Propst stated (2004), that sometimes it “takes a dramatic event to capture our collective attention long enough to bring the problem to government” (p. 29). As Covault said, “Planning is what we do to shape our future. We try to make things better for ourselves, or to get out of a mess” (Covault,
1997, p. 7). Planning is not something we do only to fix problems. As A. Cheng, Kruger and Daniels (2003) described, “Developing a common place-based group identity among such disparate individuals can provide the basis for individuals to collectively act without relying on formal contracts or legal authority” (p. 95). While the aim of this research was to build theory using grounded theory methodology and allowing theory to emerge, with all of my research, I also realized a possible recommendation.

Research shows that “repeated exposure to a natural setting, such as a scenic river corridor, promotes an emotional and symbolic bond between people and place” (D. White, Virden, & van Riper, 2008, p. 645). These emotional bonds have been shown to increase pro-environmental attitudes (Budruk, Thomas, & Tyrrell, 2009). A green belt that connects the towns, open for everyone to use, and alongside the river would create this shared place, a meme to hold the identity of a community together. This could be a place to provide a shared experience that could bond identity and hopefully behavior. Place-based education has been shown to provide people with “the skills needed to regenerate and sustain their own communities” (Takano, Higgins, & McLaughlin, 2009, p. 344). Bonds to place happen as new experiences happen in those places. People find cognitive, emotional, and behavioral bonds to these places and they become part of their identity and part of the identity of the place.

This community appears dominated by the abstract identity and almost place-less narrative of temperature. People live here because the weather is nice and temperate. Nobody can wait for weather patterns to become too disrupted before acting on conservation efforts. The old village of Arroyo Grande does seem to hold the most significance to people there, but the stories around the village of Arroyo Grande do not
have enough of the environment intertwined into those narratives. There is civic place attachment, but not nature place attachment. The village is a historic old village, but not any different than any other village that might be across the United States. Other than the sandstone blocks used to build a few of the buildings, the village has nothing to ground it in the actual ecosystem.

A. Cheng and colleagues (2003) specifically propose that groups that “emerge around using, protecting, or altering the physical attributes of a location may be engaging in more fundamental processes of defining significant social and cultural meanings to that place” (p. 96). Although I will need to research further to validate or disprove cultural entropy as a theory, I wanted to propose something that shows to have mostly beneficial results for a community. Green belts have been shown to not only raise consciousness and pro-environmental behavior, they also increase property values (Asabere & Huffman, 2009; Gocove & Pathberiya, 2013). I wanted to help build a new meme for the culture of Arroyo Grande, one that would help the culture find grounding in the local ecosystem, something unique to this specific area. This also has the ability to blend some of the current culture by bringing tourism money to Arroyo Grande and even connecting agricultural tourism because of where the greenbelt would be located.

Bachelard once said the “poetic image sets in motion the entire linguistic mechanism. The poetic image places us at the origin of the speaking being” (Bachelard, 1994, p. xxiii). An image is at the heart of the symbolic transfer of meaning amongst groups. When we have a population of uprooted people wandering in a world without grounding in an ecosystem, without a history of place, how can they find themselves as characters in the story of a place? This place called El Campo to the old-timers meant a
lot to them. The creek has always been a uniting factor for the community of Arroyo Grande. Through those early experiences together they developed a “shared identity” with other people in the town (Sampson & Goodrich, 2009, p. 902). Place, and the experiences people share in that place, bring people together. All of the old-timers who shared El Campo together had a bond that still connected them. They talked about each other in that place and they were all still friends who came together on a regular basis. I can only conjecture how the community might be different if those families still owned those cabins up the Lopez canyon before the dam was built. Experiences people share help build culture. Now, we must create those places and experiences. We must form communities of practice that unite towns and write the memes of a cultural evolution that conserves places and the cultures that store that knowledge. Developing unifying places for a community to have shared experiences in many different ways around a major part of the local ecosystem could have the power to help build a stronger culture grounded in place.

While removal of the dam would be one way to return the ecosystem back, with California in the current drought, people cannot fathom how removing water storage would be beneficial. An argument could be made for water tables and soil health with removal of the dam, but a greenbelt still is a good compromise to begin those conversations. Not only would a greenbelt build a place identity amongst the community, it also might have the ability to build biophilia and encourage connection with the local ecosystems. Having a centrally located and easily accessible park system that connects the beach with the local watershed with the historical village makes all of the connections across this research. The beach has become a driving force of the economy, but also of
the identity of the youth. In many ways the greenbelt connects the lifelong residents to the emerging adults.

Lastly, famous parks such as New York’s Central Park or Boston’s Emerald Necklace unify the identity of these cities. While apartments around Central Park are incredibly expensive, the value of Central Park for the city is immeasurable. Apartments and condos with views of Central Park fetch upwards of a million dollars. Part of the reason we have these parks was because, as Olmstead stated, they refresh and reinvigorate “the whole system” (Olmstead, 1995, para. 32). Although Olmstead used this quote as an argument directly for Yosemite, we understand now the need for parks closer to home. Nature cannot be seen as something out there, away from everyday life. Research has shown enough the restorative benefits of having experiences in nature in your everyday life. Not only do parks help provide locations for physical activity and promote the physical health of a community through reducing obesity and other problems of a sedentary lifestyle, parks also increase social capital.

A 2006 report from the Trust for Public Land by Erica Gies is a comprehensive argument for the benefits of parks. Not only does the report look at economic costs of obesity, but also shows how access to parks can increase frequency of exercise. Parks provide psychological therapy, can help reduce ADHD symptoms, and support healthy brain development. Parks provide “social support” for physical activity (p. 12). Greenway transportation can help “mitigate health problems associated with fossil-fuel consumption” (p. 13). Lastly, parks can provide a “sense of community” for people in the area (p. 17). They provide a place-identity, a shared resource from where people can come together, meet each other, encourage, and share ideas. People can begin to “feel a
part of a community, trust one another, and are willing to intervene for the community when trouble arises” (p. 18).

Endogenous Realization of Aspirations (ERA)

While I have come up with many different methods and possibilities for the greenbelt, Studley’s (2007) model is a great method for integrating as many players into the process as possible. Following Studley as a model for understanding how to approach a bioregion and incorporate as many “endogenous” players into an action plan is a great method for gaining community-wide support. My own research can help build a similar cognitive map of the area. I already interviewed some key players, learned a lot about the history, both natural and cultural, researched the watershed, and attempted to understand the economics of the area. While I would not attempt to push this idea onto the community, the research I have done could be a great starting point for bringing people together to think about the possibility of a greenbelt. A solid bioregional plan could integrate multiple alternative futures for the area and highlight benefits of each.

Studley identified four major approaches using endogenous realization of aspirations (ERA): based on “locally available resources” and strives to optimize use of resources while increasing experiences of local peoples, enhances “cultural diversity, human welfare, and ecological stability, and is a response to global modernization” (p. xi). “ERA,” stated Studley, “raises people’s awareness of local problems, promotes community bonds, and fosters local identity” (p. xiii). This, in turn, should “motivate people to stay in their community and become involved in local activities.”
This idea came to me after stumbling upon an old planning document from the 1960s (Figure 5.1). At one point, the mayor of the city approved an expansion of the current Strother Park. It was going to increase the size four-fold, while including camping spots, a greenbelt, and modifying Arroyo Grande Creek to make it easier for access. The proposal looked like a great idea, and was part of a development agreement. The houses were built, but the park never was finished. I asked around to see what information I could find about how and why, but I could not find any answers. One person hypothesized that they found Chumash artifacts and that halted all work on the park. However, it did not halt development of the housing neighborhood. I then found another planning document for land use that proposed a greenbelt system through the town (Figure 5.2).

As I was hiking up and down the creek, I noticed that most of the creek has been bermmed to create a flood canal and contain the creek during flood times. None of the creek is “natural” per se. And, from where the creek reaches the ocean, up almost all the way to the village of Arroyo Grande (a distance of about three miles), there is a dirt road paralleling the creek used by the agricultural fields along the south side of the creek. At Highway One the dirt road crosses over to the north side of the creek and continues all the way to the ocean. Some people already currently use the road although it is posted for no trespassing. While I certainly have ideas about how I would create a greenbelt and what it would look like, the best method is to bring together key players to find out what they would like from this. There is a rich economic history around greenbelts and how they raise values of homes (Asabere & Huffman, 2009). Nonetheless, this would be a large undertaking for the town and would involve a lot of different players. The potential
Figure 5.1. Strother Park Schematic Use Plan approved by mayor. Courtesy of South County Historical Society. Meat Locker Archive.

Figure 5.2. Proposed greenbelt as part of park and recreation plan. Courtesy of South County Historical Society. Meat Locker Archives.
for what a greenbelt could do for the area, not to mention a longitudinal study to see how that might change the culture of the area, could be very rewarding.

**Limitations and Recommendations for Future Research**

The theory of cultural entropy is in its infancy, and the next step is to test the theory. Future research should look at different cultures, specifically cultures steeped in locations and ecosystems to compare them with other cultures known to be void of place and to see how they differ.

One of the hypotheses from the theory of cultural entropy is to test if culture is doing the work as it should for humans. If the responsibility of culture is to develop social norms from which large groups of people could learn to live together within specific ecosystems, then comparing ecosystem degradation within cultures is one way to test the theory. Culture is quintessentially, even in the scientific definition, about creating a habitable place for life to thrive.

One hypothesis from this theory is to attempt to delineate biological responses of humans to landscapes versus cultural responses to landscapes. If culture does work to mitigate human biological evolution, then there should be signs of biological stress in cultures most disconnected from the ecosystem within which they live. This might be done by looking at base biological emotional reactions, perhaps by using Appleton’s theory of prospect and refuge (Appleton, 1975, 1984). I hypothesize that seeking prospect is a biological response to fear. An analysis of cultures that build with the most prospect versus those that build with community at the center and comparing the culture for ecosystem awareness might be one way to test the theory.
If culture brings communities together, comparing smaller communities across different cultures and seeing how well they know their community or are engaged in their community might be another way for testing the theory.

Lastly, if fear is a basic biological response, one which culture helps communities over-ride through such emotions as courage and integrity, comparing different cultures for their connection to the ecosystem and the amount of fear within the culture might help validate or disprove the theory. This could be done as easily as looking at news outlets amongst different cultures and looking for keywords having to do with fear.

One limitation of the study is that I did not interview people in the late 20s to early 30s age group. There was not an easy mechanism for finding this age group of community members born and raised in the local ecosystem. In my short time there, I did not find any people of that age group born and raised in the area, and actively engaged with the community. That is not to say they do not exist, but I was not able to find them. Going back and finding participants of this age group both civically engaged and not, and seeing how their early childhood experiences were different could help to understand early adult populations in the area. This might help us understand how an emerging adult transitions into an active citizen in the community. We might find better ways for engaging that population in the community earlier. If possible, to identify keys memes from people who are actively engaged could help with education and interpretive processes for building community.

One of the questions arising from this data is to ask who are the people staying in the local community and becoming active and engaged citizens. Are there young adults ready to become new leaders and what are their connections to the local ecosystem?
Obviously new genes are not being selected for over such short times; however, in a mobile society, certain people will stay and some will move. To know why certain people move and how that migration has changed over time could help understand the early experiences encouraging people to stay in their community and act as agents of change and continuity. Many students leave the area to go to college, one of the few rite-of-passage rituals our nation celebrates amongst emerging adults, and to understand why and who comes back would also help college education.

As stated earlier, one of the biggest limitations to this research is a good quantitative scale for measuring sustainability attitudes and behaviors. After repeated problems using the New Ecological Paradigm scale, I dropped the quantitative part of this research. Participants continuously had difficulty answering the questions and one refused to even finish the scale. I have already begun data collection on a new scale development around sustainability.

**Conclusion**

Utilizing a grounded research methodology approach in designing this research, I came up with a theory of cultural entropy. The idea is that larger cultures have moved into locations and develop a culture that did not come up from the ecosystem of that area, but instead attempts to build a culture void of place. I hypothesize this comes with grave danger towards the local ecosystems and ultimately to human systems. Culture is something developed by humans to help understand the environment and to learn to exist in that environment. As we turn away from place-based knowledge, culture stops working the way it was intended to work. In order to reverse this process, we need to
develop cultural memes that connect people back to the local ecosystems and integrate natural and cultural history into the narrative of the community. To do this, for this specific location, I propose a greenbelt system along the Arroyo Grande Creek. Through semi-structured interviews, surveys, archival work, and field research, the Arroyo Grande Creek continuously came back as not only one of the most important ecological resources; it was also imbued with a rich cultural history of the area. The greenbelt has the potential to not only keep the rich histories of the area alive in the local community; it also has the potential to be socially equitable and economically stimulating while reconnecting the local people to the watershed. It is, after all, the watershed that has allowed humans to live there throughout history.

The diffusion of culture is inevitable. Humans no longer have to physically carry new tools to new locations to introduce them to new cultures. As more and more cultures link together via technology, the culture that represents that technology has already diffused into most of the other world cultures. It is not the aim of this research to say this technology is bad, or even destroying local culture. The migration of ideas, tools, and even language is something that has happened with humans since there were humans. The spirit of sharing ideas is part of the beauty of language. This research aims at understanding how this works, and suggesting we become more aware of this process.

The earth is a dynamic system in constant flux. Seeds naturally drift across oceans, or drop from birds miles away from where they started. Human culture, the tools and language of those cultures, also migrate and drift. Every single species on earth has moved or adapted to fit a changing environment and humans are no different.
Memes are in our landscapes affecting our culture and we do not always recognize this. It is difficult to predict the way our modifications to landscape might create connotative meanings to the world. While a dam might have been seen as progress to one culture, safety from floods, security from water-born disease and drought, it can also represent many other meanings as times change. For some people, it might represent fear of failure if a large earthquake hit. It might represent the hubris of humans who think it impossible to control nature. It might represent the ignorance of those people who did not understand how the dam would ruin anadromous fish populations, or how sedimentation would fill in behind the dam. Inevitably, the dam must be changed, or even removed to start the process of healing.

We cannot control the formation of memes, or how memes might morph within a society, but we can be aware of the possibilities. Within science education, language, arts, and history, we should allow for the complex and varied possibilities things might represent and celebrate those connotative meanings our landscape might contain. A dam is not just a dam. It has many different meanings depending on experience and identity. Meaning is embedded in narrative. A creek is not just a place where water flows. A creek is filled with stories and morality and beliefs. The creek has changed and will continue to change, not only physically, but culturally too. Early in life, children might be introduced to how the landscape has changed, and will change. Allow them to wrestle with the ambiguity and complexity of meanings surrounding the physical world around them.

As the children with such an education reach the emerging adult phase, this will allow them to find and celebrate their own identity better. We must not allow nostalgia to control progress; however, we must be equally concerned with moving forward and
forgetting the past. One of the beautiful parts about the communities of practice theory (Lave & Wenger, 1991) is how new members of a community sit on the periphery and find ways to join. They look towards the experts and emulate them, follow them, and find ways to feel like they belong in the group. Whether it is being a fisherman, an environmentalist, a water resource manager, or a recreational user, we find these communities and want to join them. However, it is the experts who look to the fringes. They look for ways in which to bring in new members. The experts expand the periphery of the group to make connections. If we want to train students to be experts in their field, then we must also train them to look beyond their field, outside of their community, and find ways to see the way other people see.

We have come a long way since those first pre-human hominids began to walk, to carry food back to our loved ones, to point and gesture how to use a tool, to vocalize stories of how to be treated and to treat other people, to name the world around us, and to change and adapt the environment to increase our survival.

We have worked for thousands of years to create cultures to minimize the fear and danger around us. From lions and snakes to drought and floods, we created cultures in order to increase our knowledge and pass down wisdom so we could find ways to mitigate the dangers of the world around us. Now, perhaps, we have come to a place where our cultures are creating more fear in the world, more dangers, and more destruction than the opposite. Our cultures are beginning to unhinge the ecosystem and cause massive imbalance. We have strong factions in the world without the separation of geographic boundaries. We live in and amongst people who are not in our communities.
When we turn to climb back up into our tree for safety, we find it already filled with strangers.

Do we build walls on our branches, put blinders on so as not to see the person huddled in the crotch of the tree below us? Do we build higher and ask the tree to grow faster so we can see out into the distance better? What happens when our only views from our trees is to see other strangers looking out from their branches too? It is prospect we want and not refuge.

It is my belief that we build more parks, but not in the traditional sense either. We need more places where people can come together. Places where disparate communities of people can find commonalities and begin to share. If we came down from trees because we had a community to help us, then we must climb back down from trees again by building community. This community must incorporate “the integrity, stability and beauty of the biotic community” (Leopold, 1948, p. 245). We must re-attach ourselves to the place tilled. That does not mean we have to start tilling the land again, but that we must understand how the ecosystem of which we are part is integral to our existence. If we cannot identify the need around us, if we cannot value the ecosystem and the services it provides, then we cannot make sound policy decisions to preserve life. This is not about hearkening back to some romanticized time in history when things were better. It is not about eschewing technology for simpler living. It is not about avoiding change or maintaining cultural delineations. It is about understanding place, both physical and cultural, and making sure it is incorporated into local human communities. Communities must have places they share, places for them to experience, and places from which to tell stories, and create new ones and pass them along to the next generation.
REFERENCES


Chicago, IL: University of Chicago Press.


Cambridge, MA: Cambridge University Press.


APPENDICES
# Appendix A

## High School Student Survey

<table>
<thead>
<tr>
<th>Age:</th>
<th>Occupation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender:</td>
<td>Primary Language:</td>
</tr>
<tr>
<td>Ethnicity:</td>
<td>Parent’s Education:</td>
</tr>
<tr>
<td>Education:</td>
<td>Parent’s Occupation:</td>
</tr>
</tbody>
</table>

Where were you raised as a child? Be as specific as you can; if you grew up in Arroyo Grande, what part of the city?

How long did you live there?

Have you ever moved?

How long have you lived in your current residence?

Do you belong to any organizations? Please list.

Do you volunteer with any organizations? Please list.

Have you donated time or money to any of these organizations recently?

Please list all hobbies, sports and/or types of recreation/leisure with which you are involved:
Do you consider yourself active in the community? Explain.

Please answer each of the following questions with complete sentences. Use as much detail as possible when describing everything.

Please describe your most memorable early experience in nature. Include as much detail as possible. Please describe using all of your five senses. What did it smell, taste, touch, sound, and/or look like? Describe any emotions you remember feeling during this time. Things to consider: How old were you? What time of year? What time of day? Who was with you? Do you remember any plants, trees, or animals? What type were they or what did you call them? How long did it last? Attach additional pages if needed.
Did this place have a name or something you called it? Please explain.

Where was this place located? Please give the approximate geographic location.

Does this place still exist? Do you still go to this place? Is there another place you go now? If so, where is it located?

For each of the following statements, please indicate the extent to which you agree or disagree.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Somewhat Disagree</th>
<th>Neutral/Unsure</th>
<th>Somewhat Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>We are approaching the limit of the number of people the Earth can support.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Humans have the right to modify the natural environment to suit their needs.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>When humans interfere with nature, it often produces disastrous consequences.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Human ingenuity will insure that we do not make the Earth unlivable.</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>
Thank you for participating in the survey. Below is a spot for any other additional responses you feel relevant.
Appendix B

Letter of Information Sent Home to Parents and/or Guardians

**Introduction/Purpose:** Professor Steven Burr in the Department of Environment and Society at Utah State University, along with student researcher Nathaniel Miles Millard, are conducting a research study to find out more about early experiences in the community. Your student has been asked to take part because they are a high school senior or junior in the community. There will be approximately 100 participants from the high school. Along with the surveys, 20 lifelong residents are being interviewed. There will be approximately 120 total participants in this research.

**Procedures:** If you agree to be in this research study, your student will agree to fill out the survey to the best of his/her knowledge during class. They will submit a writing sample in which they will answer short open-ended questions about their most memorable early experience in nature.

**Risks:** Participation in this research study may involve some added risks or discomforts. These include the possibility of bringing up past abuse and/or traumatic experiences from childhood. Your student is not required to speak about these issues, and the researcher is NOT a trained counselor. The researcher will have zero contact with your student. The researcher will not know your student’s name or contact information. A free local 24-hour helpline has been provided in case your student needs assistance: 1-800-400-1572. Your student may also speak with their school counselor. If the researcher finds any reports of abuse, criminal activity, or traumatic experiences, the incidents may be reported to the school principle and/or local police as warranted; however, they will have no way to identify the actual student.

Findings from the research will be published nationally in such places as *Orion* and/or *The Journal of Outdoor Education*, and locally in such places as *The New Times*.

**Benefits:** There may not be any direct benefit to your student from this study. The investigator, however, may learn more about early childhood experiences and the connections between language, experience and moral development. The investigator may be able to develop better curriculum for childhood education. The researchers hope to learn how early childhood experiences have fostered an active engagement with the community.

**Explanation and Offer to Answer Questions** This research has been explained by Nate Millard and has answered your questions. If you have other questions, concerns, complaints, or research related problems, you may reach Professor Burr or Nate by email or telephone (information provided below).
Voluntary nature of participation and right to withdraw without consequence: Participation in research is entirely voluntary. You may refuse to participate or withdraw your student at any time without consequence or loss of benefits. If your student does not complete the entire questionnaire, or does not fit the required demographics for this study, your student may be withdrawn from this study without your consent by the investigator. Any data that was collected will be destroyed. If you choose to withdraw your student or if s/he chooses to withdraw from the research, the collected data will be destroyed.

Confidentiality: Research records will be kept confidential, consistent with federal and state regulations. Only the investigator and student researcher Nathaniel Millard will have access to the data which will be kept in a locked file cabinet in a locked room in the Institute for Outdoor Recreation and Tourism office in the College of Natural Resources at Utah State University. There will be no personal identifiable marks on the forms. Students will not be asked to write their names on the survey to keep the survey completely anonymous.

IRB Approval Statement: The Institutional Review Board for the protection of human participants at USU has approved this research study. If you have any pertinent questions or concerns about your rights or a research-related injury, you may contact the IRB Administrator at (435) 797-0567 or email irb@usu.edu. If you have a concern or complaint about the research and you would like to contact someone other than the research team, you may contact the IRB Administrator to obtain information or to offer input.

Investigator Statement: “I certify that the research study has been explained to the individual, by me or my research staff, and that the individual understands the nature and purpose, the possible risks and benefits associated with taking part in this research study. Any questions that have been raised have been answered.”

_______________________________
Dr. Steven W. Burr
(435) 797-7094
steve.burr@usu.edu

_______________________________
Nathaniel Miles Millard (Ph.D. Student)
(435)797-1009
nathanielmilesmillard@gmail.com
Appendix C

Informed Consent Signed by Interviewees

**Introduction/Purpose:** Professor Steve Burr in the Department of Environment and Society at Utah State University, along with student researcher Nathaniel Miles Millard, are conducting a research study to find out more about early experiences in the community. We hope to identify places and activities shared by members of this community. We hope to develop curriculum to provide similar experiences to the youth of the area. You have been asked to take part because you are a lifelong resident in the research area. There will be approximately 20 interviews conducted and 100 high school seniors and juniors at the local high school will be surveyed. There will be approximately 120 total participants in this research.

** Procedures:** If you agree to be in this research study, you will be asked to answer a few short, open-ended questions about your early experiences in the community. Interviews may last about one hour. You can choose to interview at your house, at the South County Historical Society, or at the Central Coast Salmon Enhancement’s building. You will also be asked to fill out a short survey. These interviews will be digitally recorded, transcribed, and used to develop curriculum for local area children. Nathaniel Millard will transcribe the interviews.

**Risks:** Participation in this research study may involve some added risks or discomforts. These may include memories you might have from past abuse or traumatic experiences from childhood. You are not required to speak about these issues, and the interviewer is NOT a trained counselor. Attached is a free local 24-hour helpline: 1-800-400-1572. Risks can include employability, insurability, reputation, etc. Please be aware of what you say during the interview. Findings from the research will be published nationally in such places as Orion and/or The Journal of Outdoor Education and locally in such places as The New Times. The interviews will be made public at the South County Historical Society.

**Benefits:** There may not be any direct benefit to you from these procedures. The investigator, however, may learn more about early childhood experiences and behavior. The investigator will be able to develop better curriculum for childhood education. The researchers hope to learn how early childhood experiences have fostered an active engagement with the community.

**Explanation and Offer to Answer Questions** Nate Millard has explained this research study to you and has answered your questions. If you have other questions, concerns, complaints, or research-related problems, feel free to reach either Professor Burr or Nate by email or telephone (information provided below).

**Voluntary nature of participation and right to withdraw without consequence:** Participation in research is entirely voluntary. You may refuse to participate or withdraw at any time without consequence or loss of benefits. If for some reason
you do not match the demographic criteria for this study, you may be withdrawn from this study without your consent by the investigator. Any data that was collected will be destroyed. If you withdraw from the research, the collected data will be destroyed.

**Confidentiality:** Research records will be kept confidential, consistent with federal and state regulations. Only the investigator and student researcher Nathaniel Miles Millard will have access to the data, which will be kept in a locked file cabinet in a locked room. However, with your permission, the oral interview and transcriptions will be stored at the South County Historical Society to be preserved for the future.

Please check the box and initial the line if you grant permission to store the interviews at the historical society for future generations use.

__________
initials

**IRB Approval Statement** The Institutional Review Board for the protection of human participants at USU has approved this research study. If you have any pertinent questions or concerns about your rights or a research-related injury, you may contact the IRB Administrator at (435) 797-0567 or email irb@usu.edu. If you have a concern or complaint about the research and you would like to contact someone other than the research team, you may contact the IRB Administrator to obtain information or to offer input.

**Copy of consent** You have been given two copies of this Informed Consent. Please sign both copies and keep one copy for your files.

**Investigator Statement** “I certify that the research study has been explained to the individual, by me or my research staff, and that the individual understands the nature and purpose, the possible risks and benefits associated with taking part in this research study. Any questions that have been raised have been answered.”

___________________________
Dr. Steven W. Burr
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___________________________
Nathaniel Miles Millard (Ph.D. Student)
(435)797-1009
nathanielmilesmillard@gmail.com

**Signature of Participant** By signing below, I agree to participate.

___________________________
Participant’s signature

___________________________
Date
Appendix D

Interview Questions

What is your age?
What is your occupation?
With which gender do you identify?
With which ethnicity do you identify?
What was your highest level of education?
What is your primary language?
What was your parent’s education?
What was your parents’ occupation?
Where were you raised as a child? Be as specific as you can; if you grew up in Arroyo Grande, what part of the city?
How long did you live there?
Have you ever moved?
How long have you lived in your current residence?
Do you belong to any organizations? Which ones?
Do you volunteer with any organizations? Which ones?
Have you donated time or money to any of these organizations recently?
Do you participate with any sports, hobbies, and/or types of recreation/leisure?
Do you consider yourself active in the community? Explain.

Please describe your most memorable early experience in nature. Include as much detail as possible. Please describe using all of your five senses. What did it smell, taste, touch, sound, and/or look like? Describe any emotions you
remember feeling during this time. Things to consider: How old were you? What time of year? What time of day? Who was with you? Do you remember any plants, trees, or animals? What type were they or what did you call them? How long did it last?

Did this place have a name or something you called it? Explain.

Where was this place located?

Does this place still exist? Do you still go to this place? Is there another place you go now?
Appendix E

Biographical Sketch

It is important in Grounded Theory Methodology to understand the role of the researcher in this process. Trying to understand how my life affects my interpretation of data is an important part of the research.

I was born and lived my first 20 years of life in Arroyo Grande. As a young child, I often would go down to the Arroyo Grande Creek to play. It was not an open trail, and I would often come home with a bad rash of poison oak. Later in life I would surf the river mouth of the creek, and even take a kayak down it during flood conditions.

Eventually, I moved out of the area to live in Alaska to work as a fishing guide on the Karluk River. In this tiny native village of about 40 people, I realized what it meant to have old roots to land. The native Alutiq people had lived in that village for well over 5000 years.

After Alaska, I moved to Chico to go back to school and study English. Here I worked as a guide again taking people out into the local landscape rock climbing, rafting, backpacking, and more. While taking people out, I began to develop journaling exercises connecting people to landscape through metaphorical writing. I wanted to understand the ways language connects to place and how those connections to place lead to civic engagement. This eventually led to my PhD at Utah State University and this research.

In Utah, I bought a house and focused on growing roots to a community. I bought a house, got to know my neighbors, grew my own food, and hiked the land
overlooking the Cache Valley where my home was located. Many nights I
watched the sun set over the Wellsville Mountains and wrote about what it means to
create a home.

While writing and analyzing the data from my PhD, I moved to Guatemala for
6 months to live in a tiny remote village on the Pacific Ocean and conducted
research on the perception of tourism to a small remote village. I then returned to
the US, bought a van and lived in a van while travelling the United States. I wrote
and thought about what it meant to be without roots.

I eventually moved back Chico to teach courses in place attachment and
community engagement at the State University.
CURRICULUM VITAE

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UNIV 105: Self, Identity, and Sustainability (10 sections) 2012 to Present

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EXP 105 Personal Dimen. of Educ. (1 section) 2012 to Present
COM 345 Media Writing for Com. (2 sections) 2011 to Present
ENG 225 Introduction to Film (7 sections) 2006 to Present
ENG 121 English Comp I (18 sections) 2006 to Present
COM 200 Interpersonal Comm. (2 sections) 2007 to Present
ENG 122 English Composition II (9 sections) 2007 to Present
ENG 125 Intro to Literature (9 sections) 2007 to Present

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Email: steve.burr@usu.edu
Teaching Associate:
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Instructor:
KINE 226 Methods of Teaching Wilderness Living Fall 2003, Fall 2004, Fall 2005, Fall 2006
PHED 121 Intro to Backpacking Spring 2007, Spring 2005, Spring 2004, Fall 2003
UNIV 101 University Life 101 (Co-instructor with Reid Cross, EdD) Fall 2006
PHED 117 Cycling Spring 2007, Fall 2006
PHED 123 Intro to Rock Climbing Fall 2006, Fall 2004

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Chico, CA
Supervisor: Jeanne Clark, PhD. Phone: (530) 898-6457
Instructor:
ENGL 220 Beginning Creative Writing Spring 2006
Teacher Assistant:
ENGL 420 Advanced Poetry Writing Fall 2006, Fall 2005
ENGL 257C American Literature (1920-1950) Fall 2004

COURSES DEVELOPED:

Curriculum and Syllabi developed for U-Course: Science and Self
Curriculum and Syllabi developed for UNIV 105: Self, Identity, and Sustainability
Curriculum and Syllabi developed for ENGL 130: Academic Writing (based on sense of place)
Curriculum, Course, and Syllabi developed for KINE 398: Wilderness Experience for First-Year Students
Curriculum and Syllabi developed for ENGL 220: Beginning Creative Writing
Curriculum and Syllabi developed for ENGL 130: Academic Writing
Curriculum, Course, and Syllabi developed for KINE 226: Methods of Teaching Wilderness Living.
Curriculum and Syllabi developed for PHED 121: Backpacking
Curriculum and Syllabi developed for PHED 123: Rock Climbing

TEACHING INTERESTS:

Environmental Science
Environmental Literature
Ecology and Eco-literacy
Sustainability
First-Year Education

Outdoor Education
Eco-criticism/Eco-linguistics
Environmental Rhetoric
Science Education
Experiential Education

RELATED TEACHING EXPERIENCE:

Special Consultant and Lecturer, Department of Kinesiology, Outdoor Education Program, CSU Chico [December 2012 to Present]

Environmental Education Consultant: Central Coast Salmon Enhancement, Arroyo Grande, CA [2010 to 2014]

Via Ventures Travel, Antigua, Guatemala: Social Responsibility and Eco-tourism Consultant. [October 2010 to Present]

Challenge Course Lead-Facilitator  
Outdoor Leadership Program, CSUC, Chico, CA. [Fall 2004 to Spring 2007]

Coordinator/Program Developer/Trip Leader  
Chico Bound Freshmen Wilderness Orientation: Associated Students, CSUC, Chico, CA. [January 2004 to January 2006]

Staff Trainer/Trip Leader  
Adventure Outings, CSUC, Chico, CA. [Fall 2003 to Spring 2005]

Assistant Manager/Fly-Fishing Guide  
Karluk Lodge, Karluk, AK. [May 1997 to October 2000]

PUBLICATIONS:

**Journal Article:**


**Creative Writing:**

“Arse Poetica: Vecinos (Neighbors),” Superstition Review Winter 2013  


**News Article:**


**Work in Progress:**

AWARDS:

Paul Persons Award for Teaching Sustainability, Spring 2014

Wilderness Education Association Outstanding Student Award. Spring 2010.

Quinney Research Fellowship. Utah State University, Logan, UT. Fall 2007.

Advisory Board Outstanding Student Service Award. California State University Chico, Chico, CA. Spring 2006.

Travel Grant: Arizona State University, Creative Writing Conference. California State University Chico, Chico, CA. Spring 2006.

Travel Grant: Wilderness Educators Association Conference in Estes Park, CO. California State University Chico, Chico, CA. Spring 2005.


COMMITTEES AND WORKING GROUPS:

First-Year Experience Task Force, CSU Chico. (August 2013 to Present)

GE Redesign and Pilot Curriculum for Character, CSU Chico. (March 2013 to Present)

Outdoor Education For All. Community-wide group working on providing outdoor education experiences to Northern California. (January 2013 to Present)

Accreditation Council and Curriculum Committee. Wilderness Education Association (February 2010 to Present)

CONFERENCES:

Presenter, “Communities of Practice in Outdoor Education.” International Conference Outdoor Leadership, Salt Lake City, UT. Feb. 4th, 2014


**GUEST LECTURES:**


“What’s in My Pocket: Observation Like Twain,” English 220: Beginning Creative Writing. CSUC, Chico, CA. April 5th, 2005.


VOLUNTEER:

Faculty Mentor to Resident Halls: Spring 2014 to Present
Tree Guild of Arroyo Grande: Planting Trees 2009 to Present
Central Coast Salmon Enhancement: Environmental Ed. Consultant 2006 to Present
Musical Performance: Benefit for Cancer, Boise, ID July 24th, 2011
Teaching English, Guatemala: October 2010 to April 2011
Student Sustainability Council: August 2008 to May 2010
Madagascar, Africa: Building Stoves to Save Trees and Health: Summer 2006.
American Red Cross: Hurricane Katrina, Louisiana September 1st to 18th, 2005.
Boy Scouts of America: Winter Skills Lessons 2001-2006

PROFESSIONAL MEMBERSHIP:

Association for Study of Literature and Environment (ASLE)
Association of Experiential Education (AEE)
Association of Writers and Writing Programs (AWP)
North American Association for Environmental Education (NAAEE)
Wilderness Educators Association (WEA)
Phi Kappa Phi Honor Society
Golden Key Honor Society

CERTIFICATES AND SPECIALIZED TRAININGS:

Next Generation Science Standards Training
Civic Learning Institute (Civic Engagement in Classroom)
Academy E-Learning (Technology in Classroom)
Ashford University Online Faculty Development
Ashford University Online Teaching Instructor Course
Wilderness Educators Association Instructor Training Course
Wilderness Educators Association National Standards Program
Leave No Trace Master Trainer
Swift Water Rescue SRT Unit 1 Tech
Wilderness First Responder WMI of NOLS
American Heart Association Heart Saver CPR
California Commercial Driving License Class B
Defensive Driving Training Program
Avalanche One Certification through Mt. Shasta Avalanche School
American Red Cross: First Aid Basics
American Red Cross: Mass Care: An Overview
American Red Cross: Shelter Operations
American Red Cross: Introduction to Disaster Services
REFERENCES:

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STATEMENT OF TEACHING PHILOSOPHY:

Each time I walk into a classroom to teach I think about my responsibilities. I have a responsibility to history: theoretical, cultural, intellectual, and ecological. I believe to move forward we must first know from where we came. I have a responsibility to the present. From world news to local, from pop culture to rare trends, from emotional contexts to technological inventions, it is my duty to be informed. I have a responsibility to the future. Each student represents a piece of that future and the ability to carry knowledge forward. In each student is a chance to create a love for learning, a passion for inquiry into the way the world moves, and a desire for understanding.

Bachelard once said that the whole linguistic system begins with the poetic image. For me, I call this metaphor; the Latin root of which means to transfer. All of language is a transfer of an idea or an image into words. When I teach grammar I don’t do it because there are rules; I explain it as a key component to effective communication. It is about community membership and the repertoires needed to be an essential member. I teach about the importance of audience as it pertains to experience with those people at varying levels of citizenry and friendship. Having been raised around Montessori philosophy, I believe all learning should be centered on the passions of the individual. It is my job to expand those passions and find connections between the students in the classroom, the college, and the community. We understand each other through a transfer of images we turn to words. Community is about communication.

A classroom must be a safe learning environment. In my class I take the time to speak with each student and go over the images we think about for a safe learning environment. By spending a little bit of time going over effective communication skills, appropriate feedback, and good listening techniques, I form classroom constitutions to help foster that safe learning environment. I believe whole-heartedly in collaborative learning and this process must begin by creating a safe environment in which individuals can openly and honestly share with each other. Learning is a social process.

Learning should also be a rigorous process. Like any trade or skill, we progress by the sweat and work demanded by our bosses or clients. Academic rigor requires a teacher willing to toil and sweat along with their students. I tell my students they should demand more out of me, not hope for less. I believe in a mentor/mentee relationship. The mentor must set an example and demand excellence in self and others. However, the mentor must also learn to be humble and must openly become a member in the learning process.

Lastly, students’ work must be relevant. Not only should the work connect to the passions of the student, but also the work should take students into the community. Service learning projects engage students in the local community while grounding education in place. For students to feel invested in service learning projects, to feel empowered by education, and to become an active and engaged citizen, it takes a specific knowledge of place—the cultural and environmental history of place. It is a responsibility I take very seriously.