

Indigenous Youth Engagement in Environmental Sustainability: Native Americans in Coconino County

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Engaging young people in environmental sustainability is a promising approach for fostering positive development among youth and communities. The purpose of this research was to examine the impact of Native American youth engagement in environmental sustainability in Coconino County. This qualitative case study focused on how a social cognitive theory influences Native American youth engagement in environmental sustainability. The results found that personal (values and attitudes), behavioral (learnings and lifestyles), and environmental (green space and environment stewardship) were the underlying themes associated with engagement of Native American youth in environmental sustainability in Coconino County which has a relatively large Native American population. In turn, the Native American youth who were given early exposure to place-based and environmental education had a positive impact on environmental sustainability in their community. This paper offered some psychosocial and behavioral science implications as well as recommended further investigation on indigenous youth engagement in social and environmental soundness.

Keywords: youth engagement, environmental sustainability, social cognitive, Native American, Coconino County

Youth constitute a large part of the world's population (United Nations, 2012). Engaging young people to promote environmental sustainability had significant implications for fostering youth development as well as for their communities (Browne, Garst, & Bialeschki, 2011). Youth who were engaged in community-based activities were more likely to connect with their local community (Evans, & Prilleltensky, 2007; Shochet, Dadds, Ham, & Montague, 2006). These feelings of social bonding contributed to positive attitudes and behaviors between youth and their community (Witherspoon, Schotland, Way, & Hughes, 2009; Rushing, Hildebrandt, Grimes, Rowsell, Christensen, & Lambert, 2017). Unfortunately, many youth did not have the opportunity to engage in environmental issues, so they reported feeling disempowered in their own communities (Hart, & Atkins, 2002). When youth feel disconnected from their community they are at risk for low academic performance (Klem & Connell, 2004) violence (Knoester & Haynie, 2005; Haynie, Silver, & Teasdale, 2006), and poor health (Shochet, Dadds, Ham, & Montague, 2006). In particular, Native American youth were more likely to experience depression, alcohol abuse and suicide in comparison to other ethnicities in the United States (Gary, Baker, & Grandbois, 2005; Garrouette, Goldberg, Beals, Herrell, & Manson, 2003; Balis & Postolache, 2008).

Many researchers suggested that fostering youth engagement in environmental issues promoted pro-environmental behaviors and the practical skills essential for community development (Sawitri, Hadiyanto, & Hadi, 2015; Johnson, Johnson-Pynn, Sweeney, & Williams, 2009; Schusler & Krasny, 2010). The evidence supported that youth engagement in

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terms of environmental sustainability made a positive impact at a national and an international level (Volk & Cheak, 2003). However, the research on indigenous youth engagement in environmental sustainability in their local community is relatively limited. Therefore, this research aimed to examine the impact of Native American youth engagement in environmental sustainability in Coconino County which has a relatively large Native American population in USA.

Literature Review

Coconino County

Coconino County is located in the north central part of the state of Arizona. It is the largest county in Arizona and the second-largest county by area in the United States, behind San Bernardino County, California, with 18,661 square miles. The population is 134,421 and could be described as diverse, historic, beautiful and friendly. The name Coconino is derived from *Cohonino*, the Hopi word for *Havasupai* and *Yavapai*. The county seat is Flagstaff in the AZ Metropolitan Statistical Area. Coconino County has a relatively large Native American population, with nearly 30% of the total population of county consisting of federally designated Indian reservations, such as the Havasupai Nation, Hualapai Nation, Hopi Nation and parts of the Navajo Nation (Coconino County Administration Office, 2017).

Indigenous Community

The United Nations defines indigenous peoples as the descendants of those who inhabited a country or a geographical region at the time when people of different cultures or ethnic origins arrived (United Nations, 2002). Indigenous communities are often referred to in terms of the larger ethnic groups of which they are a part of the indigenous peoples of a country or a region. These particular ethnic groups often have a minority status in the countries in which they are located. Thus, they are often ethnic minorities. In some other contexts, indigenous peoples are referred to by governments using terms like ethnic minorities, hill tribes, tribal people, aboriginal people, native people, or others (Asian Development Bank, 2010).

Native Americans are the indigenous peoples of the United States. There are 566 Indian tribe entities recognized and eligible to receive services from the United States Bureau of Indian Affairs (Bureau of Indian Affairs, 2014). The Navajo are the second-largest federally recognized tribe in the United States after the Cherokee. The Navajo Nation extends into the states of Arizona, Utah and New Mexico, covering over 27,000 square miles of beautiful lands (Navajo Nation Government, 2017).

Environmental Sustainability

Environmental Sustainability has been significantly shaped by changing perceptions in development and environmental studies during the 20th century. It emphasizes the necessity to achieve further economic growth in an environmentally-friendly manner. Environmental sustainability has been recognized as the dominant paradigm of sustainable development. The three components of sustainability consist of environment, social and economic components. Environment is maintaining the ecosystem. Social is maintaining community capacity that fosters effective participation and equitable treatment of all participants. Economic is

maintaining an economic system that provides a standard of living for this and future generations (World Bank, 1986).

Youth Engagement

The United Nations describes youth as a period of transition from the dependence of childhood to adulthood's independence and awareness of our interdependence as members of a community. Youth is a more flexible category than a fixed age-group. However, for statistical consistency, the UN defines youth as those persons between the ages of 15 and 24 year (UNESCO, 2017).

Youth engagement refers to the perceptions of youth, their voice and relevance within a specific situation. Youth who feel engaged in their community are more likely to feel valued by their communities. Youth engagement is a positive mechanism for youth development when it satisfies basic human needs; when it allows opportunities for skill building that, in turn, promotes feelings of self-efficacy. Since social environments such as community are important to positive development, youth engagement in community issues represents one route toward positive development (Browne, Garst, & Bialeschki, 2011).

Theoretical Framework

The theories specific to self-determination, cognitive development and social development outline the ways youth engagement may foster overall positive growth (Browne, Garst, and Bialeschki, 2011; Sawitri, Hadiyanto, & Hadi, 2015). In this research, the authors applied the fundamental tenet of Albert Bandura's Social Cognitive Theory (1989) which points out that human behavior operates within a framework of triadic reciprocity involving reciprocal interactions among three sets of influences: personal, behavioral and environmental factors.

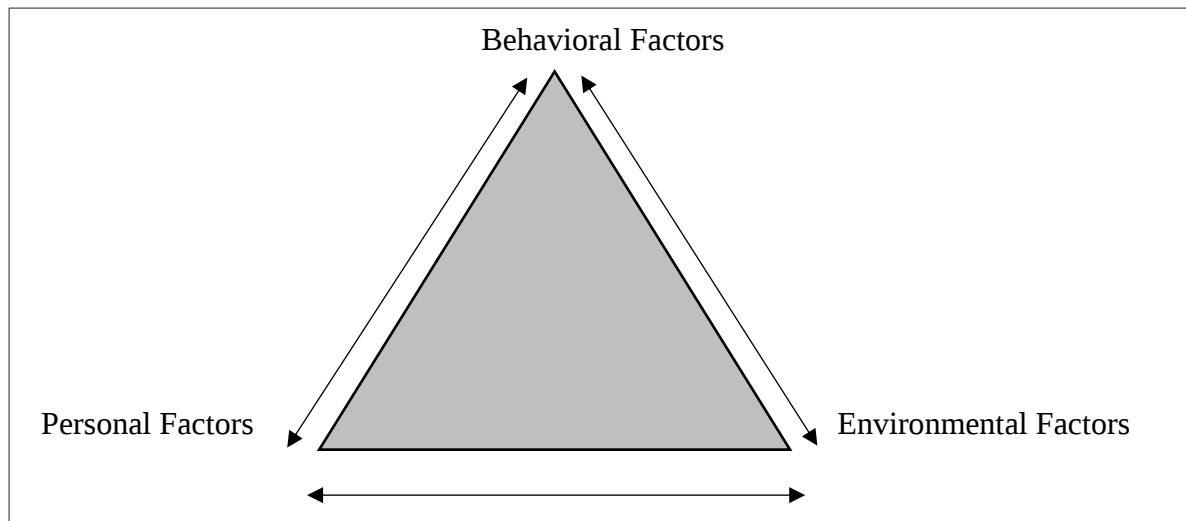


Figure 1. A Framework of Triadic Reciprocity in Social Cognitive Theory

The reciprocal interaction shows that values and attitudes influenced the youth to engage in environmental sustainability (person → behavior). As youth learning through experience, they gain practical skills so their self-efficacy is enhanced (behavior → person). The relationship between person and environment can be explained by the youth in this context

having high levels of self-efficacy. Environmental sustainability focused on the youth's perceived gain in practical skills (person → environment). In turn, environmental sustainability can affect the self-efficacy of youth (environment → person). The link between behavior and environment occurred in place-based and environmental education. Environmental factors can direct behavior and engaged youth participated in environmental sustainability (environment → behavior). When people in the community see youth engaged in environmental sustainability, they may admire the youth (behavior → environment).

Method

This exploratory case study focused on how the Social Cognitive Theory of Albert Bandura (1989) could be applied to Native American youths in Coconino County, Arizona, in the United States of America. The researchers worked in partnership with several Coconino County public officers from Coconino County Administration Office during Environmental Sustainability Fellowship Program in April to May, 2017. These partnerships, based on mutual respect and appreciation of strengths and limitations, were vital for quality checks and reflexivity (Yazan, 2015), especially in the western and Native American contexts.

Research Setting

These collective case studies took place in five school sites in Coconino County using fictitious names in Navajo languages as follows: 1) Ooljee Moon Charter School serves predominantly Native American students from pre-school through eighth grade who live in the Southwest corner of the Navajo Nation. 2) Kai Willow Tree Public School is actually situated on the Navajo reservation. The school has students from kindergarten through eighth grade. The majority of the students are Native American who live on the reservation. 3) Sialea-lea Little Bluebird Elementary School is a dual-language school and is comprised of a Navajo Immersion Language Program and a Spanish-English bilingual program located in Flagstaff. 4) Mai Bright Flower High School is one of two public accommodation schools under the Coconino County Accommodation School District. 5) Yanaha Brave High School is a four-year public high school with students comprised primarily of five ethnic groups: Anglo-American, Native American, Hispanic, Asian, and African-American. Approximately 50 percent of the students were minorities; 147 of them were Native American students who live in a dormitory in Flagstaff.

Participants

The forty key informants were students, parents, teachers, principals, guidance counselors, volunteer, community coordinators and the board of school directors from the five unique schools. The researcher used maximum variation sampling which is a small number of units or cases that maximize the diversity relevant to the research questions in order to understand how this phenomenon is seen and understood by different people, in different settings, at different times and to maximize the range of perspectives to increase reliability, generality and represent distinctive characteristics of engaging Native American youth in terms of environmental sustainability in Coconino County (Stake, 2006; Tashakkori & Teddlie, 2010).

Data Collection

There were five face-to-face interviews, five focus groups and site observations were conducted in the five school sites during a field visit of Environmental Sustainability Fellowship Program from April to May, 2017. In order to more deeply explore the perceptions of the key informants regarding environmental sustainability, open-ended and probing questions: 1) How does Coconino County engage Native American youth to care about environment?; and 2) What is the impact on environmental sustainability among Native American youth in Coconino County?

Data Analysis

Triangulating performance data used evidence from different types of data sources, such as primary and secondary research includes conversational interviews, structured-question interviews, documents, public records, photographs and observations from across these five schools provided a much clearer picture of the overall situation than simply reviewing the data from one school and attempting to extrapolate broader lessons from those data (Cresswell & Clark, 2007). In addition, we used of more than one investigator, interviewer, observer, researcher and data analyst in a study. Several of the aspects of themes were developed from the Social Cognitive Theory of Albert Bandura (1989). Considering these themes in light of the literature and data triangulation, the researchers were able to combine a deductive review of the literature with an inductive approach to coding that allowed data from the specific context to emerge (Yin, 2009).

Results

The researchers were invited to be part of many school activities, including soil building, planting, tending, harvesting, gardening lessons and the “Well Day Celebration”. This helped researchers to gain deeper insight into a fundamental tenet of the Social Cognitive Theory of Albert Bandura (1989) of how Coconino County engages Native American youth to care about the environment and its impact on environmental sustainability among Native American youth in Coconino County. At this stage, researchers considered personal, behavioral, and environmental as underlying themes associated for engaging Native American youth on environmental sustainability in Coconino County. In addition, many sub-themes emerged from the specific context consisting of values and attitudes, learnings and lifestyles, green space and environment stewardship.

Personal Themes: Values and Attitudes Subthemes

The results from data triangulation of five schools found that values and attitudes of Native American youth toward their community help in building a connection with the environment which also enhanced self-efficacy on environment sustainability. As one School Director stated: *“Navajo elders, as well as the elders of many other indigenous peoples, have frequently taught that humans are connected to all of nature; that we have a very real relationship with our home planet, and with all the animals and plants that live with us on this planet, and we ignore that relationship at our peril.”*

There was also a strong sense of community bonding at the school. As one guidance counsellor elaborated: *“In the Native American way, relationships determine your identity.”*

Each student is expected to know their four clans, to be able to introduce themselves and how they're related to everyone else in the school. This creates an atmosphere of warmth, like a family". Although the majority of the students in the Navajo Nation are Native American, there is also a mix of white, black, Hispanic and Asian students. According to one teacher, *"all their students, regardless of race, learn about their background and are able to introduce themselves in their native language. Every student and staff member shakes hands in an effort to establish relationships.* This serves as a reminder and provides a deeper understanding - *that since we are all interconnected, whatever we do to others, we also do to ourselves.* The finding illustrated how Navajo culture affects Native American youth values and attitudes on environmental sustainability in their community.

Behavioral Themes: Learning and Lifestyles Subthemes

The link between behavior and environment occurred in place-based and environmental education which promotes learning and lifestyles to produce the desired benefits for the local community.

The community coordinator explained that the founders of the Ooljee Charter Moon School had an own vision of how they wanted to teach native students, particularly Navajos: *"Giving them a solid grounding in reading, math, science, and other academic subjects. The development of the school's curriculum draws from traditional Navajo culture inculcating respect, responsibility and service to the community".* Place-based education complemented and reinforced Navajo traditions throughout Ooljee Charter Moon School. It was a holistic approach based on the premise that each person finds identity, meaning, and purpose in life through connections to the community, the natural world and humanitarian values such as compassion and peace. As a teacher elaborated: *"Students complete service projects based on the land, the natural environment, the people, and the culture of the area - the largest American Indian reservation in the US".*

Kai Willow Tree Public School is taking part in gardening activity, which is coordinated with the science teacher to include relevant topics to enhance classroom curriculum. Gardening is a great way to learn about the science of plants, animals, weather, the environment and simple construction-even more so with their unique geographical location. Volunteers from a non-profit organization also work with the students during class hours as well as an additional after school gardening program. They told us that *"students enjoy the activity and became more passionate about growing their own foods".* The garden space is a great resource where Native American youth are able to do something fun and productive. As a student mentioned *"We learn and enjoy planting apple trees. We cannot plant apple trees from the roots. We have to engraft into other branches of apple trees so apple trees have scars".*

Sialea-lea Little Bluebird School also integrates their garden into the curriculum, where student projects reinforce the science lessons for the students in a tangible way on a daily basis. Under the guidance of a coordinator from Doli Blue Bird Nonprofit Organization and the fourth grade teacher, the fourth grade students play an important role in maintaining the school garden. *"The students work in the gardens, conduct experiments and collect data to learn about things like nutrition, sustainability, ecosystems, the life cycle of a plant, precipitation, insect migration patterns and erosion, to name a few".* This demonstrates how STEM (science, technology, engineering and math) has become such an integral part of the school curriculum. The finding illustrated how much youth enjoy gardening. The youth spoke with high self-efficacy about

plants they grow, how they take care of the plants according to the changing seasons and how it had encouraged them to begin gardening at their own home. As Native American youth learned through firsthand experience in their native environment, they gained practical skills and their self-efficacy was enhanced.

Environment Themes: Green Space and Environment Stewardship Subthemes

The results from data triangulation of five schools found that environmental factors can direct behaviors, engaging Native American youth in participating in environmental sustainability activities.

While its remote rural location necessitated the school's reliance on renewable energy, the decision to use renewable energy fits well with the principles of sustainable living that are intrinsic to the Navajo community the school serves. In addition to promoting renewable energy sources – The Ooljee Moon School promoted self-reliance and aimed to prepare its students for a world of environmental challenges and empowered to contribute to a more sustainable future. It is evident that sustainability influences every aspect of the school, including sustainable construction and design of school buildings, greenhouses, gardens in every building and classroom, traditional Native American stoves, pumping water from a water well, wind turbines and solar panels.

The Mai Bright Flower High School greenhouse and sustainability program is a hands-on learning laboratory providing students the opportunity to engage in land stewardship practices that nurture scientific literacy, civic responsibility, and personal wellness. The half-acre site, once a barren patch of dirt in an industrial area of Flagstaff, is being transformed by Mai Bright Flower High School students into a thriving urban green space of restored native habitat and organic gardens. The program is a daily elective class linked to the school's environmental science curriculum, using the on-site project elements as windows into larger environmental issues and scientific concepts. Student projects include solar and wind energy systems, organic food production, water conservation, compost management and soil building, permaculture principles, ecological restoration and urban landscape design. Every part of the school campus works well with both the environment and the community it serves. In turn, the environment factors can affect the self-efficacy of Native American youth.

Emerging Themes

We also found that Native American youth with early exposure to place-based and environmental education have more self-efficacy and are more likely to contribute to the positive impact in their community, as follows:

Academic success with sustainable values

Academically, the curriculum also focused on skills that are relevant in the real world while preparing students for college and careers. The school interweaves the academic disciplines of science, technology, engineering and mathematics (STEM) with traditional Navajo values. As a teacher pointed out *“Students work on projects that meets identifiable national STEM standards, investigates and provides possible solutions to environmental and sustainability challenges chosen by the student, and consequently gives back to the community”*. In addition, the Ooljee Moon Charter School is the first school promote self-

reliance, alternative building methods and energy sources such as solar and wind power in the United States.

Sialea-lea Little Bluebird School evolved in response to specific ideals for public schooling. The idea was to create an educational environment where students of different linguistic and cultural backgrounds could learn harmoniously together while pursuing “the Power of Two,” or the ability to speak, read, and write proficiently in two languages. This is why it is called as magnet school. On a grander scale, the vision was to create a school where each child’s language and culture was regarded not as a problem to be solved but as an indispensable resource, the very heart and soul of the school itself. The school is mutually beneficial to all: English speakers would learn Spanish, Spanish speakers would learn English, Navajo children would acquire their tribal language, and all students would interact in a pluralistic setting and achieve academically at a high and meaningful level.

Reconnecting with their indigenous roots

A part of Navajo culture and heritage is growing their own food. Plants have sustained families for generations, even though the area is quite arid and farming and gardening is challenging. Thus, the Ooljee Moon Charter School design their curriculum and lessons on the use of native plants in the area, as well as local knowledge of how to successfully farm and garden as well as how to provide nutritious food for the local Native American population.

The school provides a bridge that allows for the interaction of students and local farmers as well as developing greenhouses on the school campus, for the purpose of providing students with healthy, fresh, locally grown vegetables. As one teacher mentioned: *“Students learn how to plant, maintain and harvest their gardens. In addition, they also help to prepare traditional Navajo food from their harvest at the community kitchen. Other on-going projects by the students includes: aquaponics system for seedlings, rain water harvesting, and fish ponds”*.

The school field trips to the North Kai Willow Tree Family Farm which is a Diné community owned and operated farm located in the community of Kai Willow Tree, located in the Navajo Nation also engage students in culturally relevant activities related to food and gardening. The hands-on education has not only taught them where their food comes from, but also reinforced lessons related to traditional foods and Native American culture.

Discussion and Conclusion

Environment education is not only offering opportunities for experiential learning outside of the classroom, but also enables indigenous youth to make connections and apply their learning in the real world. The findings were found to be consistent with rationale of Bandura’s Social Cognitive Theory (Bandura, 1989) which illustrated how the engagement of indigenous youth on environmental sustainability is a critical ingredient to enhance self-efficacy and community development (Yohalem & Martin, 2007; Ellis & Caldwell, 2005).

In this context, Coconino County has attained social harmony by suggesting that environmental sustainability requires planning that encourages people’s cooperative rather than their competitive impulses (Basiago, 1999). The findings illustrated that Native American values and attitudes allow youth to exercise a large degree of control over their own learning and lifestyles. Nonetheless, the scope of this reciprocal influence is broader than personal

characteristics because they live in social environments (Bronfenbrenner, 1994). In terms of the reciprocal approach, Native American youth are influenced by both their actions and environment (Bandura, 1982; 1986).

The Ooljee Moon Charter School creates a joyful learning community in which Native American youth develop character, skills and attitudes for understanding themselves, living in balance and serving all relationship. This illustrates the role of personal agency in environmental sustainability (Meinhold & Malkus, 2005). Moreover, the school use all social-cognitive variables such as self-efficacy, actions and outcome expectations to promoted self-reliance, alternative building methods and energy sources through several hands-on projects (Sawitri, Hadiyanto, & Hadi, 2014). In this way, Native American youth learn about plants and food that can be grown in their region and study the impact of local Navajo culture. The school also integrated STEM education with the cultural heritage of Native Americans, which also benefits non-Native American students. STEM education within a Navajo cultural context is a constructive way to impart a sense of belonging and responsibility through understanding of their surroundings.

The Kai Willow Tree Public School initiative to take learning outside the classroom is admirable. It is also an effective way to reconnect students with their traditional Navajo culture values and making it part of their learnings and lifestyles. According to Social cognitive theory (Bandura, 1989), self-efficacy is youth's perception of their ability to effect positive change regarding the environment (Bandura, 1982). Young Native Americans learn from growing plants, they self-efficacy from achieving their goals and enjoying the food they have grown. When youth feel that they able to perform the act at a certain point in time and to a specific environment, their self-efficacy is enhanced (Wood & Bandura, 1989).

This paper highlighted the importance of environmental sustainability as it attempts to enhance social development in an environmentally sustainable manner. It also highlighted that further actions and commitments are required by the local community in order to ensure that equal priority is attributed to both environmental issues and social development. Hence, engaging indigenous youths on environmental sustainability is a promising approach to foster self-efficacy and community development (Thurber, Scanlin, Scheuler, & Henderson, 2007). The lesson of Coconino County is that sustainability depends upon managing the built and the natural environments in light of their interdependence. Teaching indigenous youths to serve as frontrunners who promote environmental sustainability contributes to community development efforts in a variety of ways (Johnson, Johnson-Pynn, Sweeney, & Williams, 2009; Schusler & Krasny, 2010).

Recommendations

Based on the results of this study, this paper offers some behavioral science implications.

- 1) Sustainable education must be conceived in a more holistic way. The academic, technical and cultural knowledge needs to be integrated in a coherent system and appropriated for the environment in the local community.
- 2) Place-based and environmental education promote a relationship with the natural environment and constructs deep environmental understanding of the world that surrounds learners. Embedding native culture into outdoor learning within school programs enables local knowledge to permeate throughout activities in experiential ways.

3) Public education should take notice of the cultural dimension that will undoubtedly contribute to giving a new impetus to sustainable education among indigenous youth.

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