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**Learning from Colombia's Indigenous Communities in multicontextualized spaces,
ancestral knowledge for environmental community education.**

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**Learning from Colombia's Indigenous Communities in multicontextualized spaces,
ancestral knowledge for environmental community education.**

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ABSTRACT

Colombia is known worldwide for its ecological and cultural biodiversity. The world and Colombia are facing an environmental and social crisis. For which Colombia's indigenous populations have been remarkable examples for their good environmental relationship with the earth and for their community living practices. There are a variety of scientific explanations to the environmental crisis, including the deep ecology authors. Despite all of the different research lenses to environmental degradation, scientists agree that the world is living the effects of human caused environmental degradation. In order to find possible solutions for the schooling system in Colombia, this research looks into the indigenous ancestral knowledge (IAK) of the indigenous communities from the Sierra Nevada of Santa Marta (ICFSNSM), Iku, Wiwa and Kogui, that could be implemented in a non-indigenous Colombian school, to teach environmental and community living, based on some of the insights of ancestral knowledge. The research used a descriptive qualitative methodology with elements of funded theory. The results presented, identified and described the IAK from the indigenous communities from the Sierra Nevada of Santa Marta and how IAK could be implemented in the pedagogy of a Colombian school.

Key words: indigenous communities, ancestral knowledge, environmental education, community education

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1. Introduction

My personal experience. In the interest of making clear the path that brought me to reflect on this problematic and to think about possible solutions, I will briefly narrate my own history. At the age of eighteen, I moved to the United States after finishing high school to start college. At that time, I had little interest in making the world a better place. I was probably a teenager like most, confused about my role in life, and with little hope. I knew I had to study to “be someone”, but my emotional life was without purpose. Like most teenagers, I was worried about my material well-being.

During that time, the Bush administration was in power, which defined an era of radicalism, “you are with us or against us” (Bush’s discourse). United States soldiers were sent back home with PTSD (Post-traumatic stress disorder) or in coffins. Despite my legal status, I could feel the resentment and racism that was being dissipated through the media in the sentiments of many United States nationalists. Such a repressive political climate sprouted in me, a feeling, I had to do something. Simultaneously I was studying at a college and was taking classes in globalization and environmental science.

I find it important to attribute part of my consciousness awakening to my professor Adam Green in environmental studies, who also ran the student’s sustainability coalition. His class made me aware of the environmental problems we are living today, and through the coalition, I participated in an event at Joshua Tree Desert, that brought scientists from all over the world to talk about water scarcity. The retreat brought about an enormous change in me, which resulted also in a selection of life decisions that have shifted my life’s path forever.

Since that consciousness awakening, I decided to live more simply and sustainably, so I transferred to the University of California, Santa Cruz, where I could study Community Studies with an emphasis on Sustainability. Simultaneously I studied Latin American Studies with an

emphasis on Indigenous Populations. Meanwhile, I became an activist to save forests and to support indigenous struggles, such as the one of the Western Shoshone Nation. During that time, I came across the book *Ishmael* (Quinn, 1992) and his theory of leavers and takers gave me a different lens to perceive the problematic of today.

For my fieldwork, I volunteered at Aldea Feliz¹, There, I was able to apply in practice what I had been learning about sustainability and community. One night we were constructing a traditional indigenous temple with the guidance of Antonio Daza² whose presence affected me. For the first time, I saw someone dressed all in white cotton, and with a *poporo*³ I was sitting by the fire with a group of volunteers and heard Daza speaking about taking care of the earth, the magic of the jungle captivated me, so I asked him where he had learned all those stories. That is when I heard about the Sierra Nevada “tribes” for the first time. Three days later, I organized my trip to the Sierra Nevada Mountains with three other friends. My purpose was now to form a sustainable community, but I wanted, and still would like this community project to be truly sustainable, and I needed knowledgeable people to help me out.

I arrived in Palomino in 2011 and was hosted by Vladimir and his family from Bogotá, who were recently residing there. In exchange for staying, I was offered a position as a teacher in a small school in Quebrada Valencia. One day after I finished my work at the school, I decided to stop at Alex’s farm. I had heard that he had organized a sustainable farm. That afternoon I visited the project, and I met an indigenous Kogui who invited me along with a group of four other people to visit the town of Taminaca up in the Sierra Mountains.

¹ An Ecovillage in the municipality of San Francisco, Cundinamarca, Colombia.

² Antonio Daza was a Muisca spiritual leader who visited the Ecovillage.

³ The *poporo* is a cosmological representation of the male and female and of the connection between the earth and humans. Young indigenous acquire it when they become adults.

The two-week experience opened a new alternative lifestyle for me. I could breathe the fresh air, bathe in the crystal-clear waters, and observed with hope, the communal network of the Kogui people. The visit, projected a necessity for me to live in a similar way. I organized a personal plan to save up money to buy a piece of land in the Sierra Mountains or somewhere nearby, and to live in a sustainable way. I went back to the United States and finished both of my bachelors. Two days after receiving my graduating degree, I started a journey that lasted six months through Mexico and Central America to the Sierra, while visiting indigenous communities and other sustainable living projects. I arrived in 2011 in the town of Palomino where I met the Arhuaco or Iku People (from now named Iku) and began a sustainable living family/ community project.

Frequently, I was invited to the town of Gumake, and I shared my home in Palomino with an Iku family. I became so immersed in the indigenous group, that it was difficult for me to understand really my place as an outsider within the Iku community. From my experience, I realized that their way of living, despite certain problems, is possible for us to implement in order to re-establish the human nature relationship, as well as our lost culture in the current individualistic capitalist society.

The following research considers that environmental education (ED), while important and with significant contributions to humanity, has failed to create the necessary changes in society in order to confront the environmental and social crisis of the XXI century. ED's incapability to transmit the necessary knowledge can be seen in students and community's difficulties of internalizing environmental and community living behaviors within their daily lives, despite their rich theoretical knowledge.

With the intention of finding an educational solution for the environmental and social problem of today, one can look at the Ancestral Knowledge Systems (AKS) from the indigenous communities, more specifically of the Sierra Nevada of Santa Marta (SNSM),

Colombia, which go beyond theory and low- environmental impact practices, such as school recycling. Indigenous communities integrate ancestral knowledge (AK) in their daily lives, and internalize it at an early age, for environmental protection and community living. Indigenous hereditary interconnectivity with the earth and all living beings provides necessary knowledge to improve community and environmental education.

The following section of the research introduces the problem's general background, which presents how the educational system needs reforms in order to provide solutions to the environmental and social crisis of today. It also reveals how humanity has been incapable of adapting at the needed pace for the current environmental and social crisis. The problem includes a brief history of where the environmental crisis comes from, and explains the relationship between environmental changes and violent conflict. Then the connection between AK and the environmental and social problematics is presented.

For a better understanding, some concepts are explained, such as poverty. The different stands about the environmental crisis are described, such as the deep ecology theory, the cornucopian theory, and the leavers and taker's theory from Daniel Quinn, Robert C. Allen and Singh Ahuti's connection of the cause of the industrial revolution and environmental degradation. To explain the social crisis, the concept of anomia by Durkheim was included.

The research continues with a state of the art of ethnoeducation in Colombia, followed by my personal experience in the Sierra Nevada of Santa Marta (SNSM). A characterization of the indigenous communities from the Sierra Nevada of Santa Marta (ICFSNSM) is presented in Table 1. The Problem location has a section about the geographic location of the Iku, Wiwa and Kogui, the document also mentions the population, language, social and political organization

The statement and questions are revealed followed by the justification followed by the theoretical framework, which starts with the section titled state of the art, grouping articles and

scientific research into three categories: Environmental change and violent conflict, worldwide application of indigenous wisdom, Waldorf pedagogy and indigenous knowledge. The four a priori concepts defined in the conceptual framework are: ancestral knowledge, environmental education, community education and school.

The next section introduces the general and specific objectives and the methodology. A multi-contextualized ethnography is appropriate for this research, because as Sandra Santos-Fraile and Ester Massó Guijarro (2017) state, the importance of multi-sited or multicontextualized ethnographies, are so that the researcher can transcend the local, in an interconnected world, where communication and movement is transnational. The populations for the case study are Wiwa, Iku and Kogui families, who migrated from their native territories, probably due to internal, social or territorial disputes with their indigenous community and Kogui and Iku families living in their ancestral territory. Ten years ago, indigenous families from the Sierra, would leave their territory because of the conflict between paramilitaries and guerrillas.

Scientists say that the Kogui, Wiwa, and Iku are descendants of the Tayrona. The ICFSNSM had an economy based on trading, the populations that inhabited the lower parts would trade with those who lived in the upper parts of the Sierra. This trading still occurs but has been disrupted since the European colonization and the arrival of the San Franciscano's missionaries. The SNSM had an unequal colonization, due to the difficult terrain in the upper parts of the mountain, which can be seen even today in more acculturation of the indigenous who reside near the coast. (Díaz, Esmeral, & Sanchez, 2017)

In the political realm the XVIII century changed the administrative organization of the ICFSNSM, because of a colonization program which introduced taxes and different systems of production, which disrupted the traditional practices. In 1871, a law returned to the indigenous the lost territories, but in 1886, Capuchino priests were in charge of indoctrinating the

indigenous and immersing them in the idea of citizen of the nation- state. The process of colonization continued, with the arrival of coffee multinational corporations in 1917, and the arrival of workers from Santanderes region and Portorriqueños. Other settlements that are located around the SNSM were created by African descendants who were escaping from slavery, merchandizers from diverse origins and farmers. (Díaz, Esmeral, & Sanchez, 2017)

A section includes the instruments and role of the researcher and finalizes by answering the general objective, then the specific objectives in the path to harmony. In the path to harmony, a comparison with the results of the theoretical framework is analyzed, and to conclude some recommendations are stated.

2. Statement and questions

Statement

Colombia is characterized as one of the richest nations in the world, because of its cultural and ecological biodiversity. Among the indigenous groups of Colombia, the ancestral native populations of the Sierra Nevada of Santa Marta have been known for having a harmonious ecological way of living. The Wiwa, Iku, and Kogui people resemble an agricultural way of living, which is more familiar to people who live the modern industrial civilization lifestyle, familiar in the sense that people in capitalist societies and the ICFSNSM are both agricultural societies, in comparison to hunter-gatherer communities, which makes the culture from the ICFSNSM, a promising example to follow and to learn from to live in harmony with nature and to reestablish a sense of community.

In order to provide solutions to the environmental and social problems, it is important to implement the ancestral indigenous knowledge and therefore to acknowledge the value of generating a dialogue between indigenous ancestral knowledge and schools with alternative

pedagogies located in urban, rural areas or among interested groups of people. The following questions look into finding the AK of the Iku, Wiwa, and Kogui that can be learned from and possibly be implemented in the school.

Questions

Which is the Wiwa, Kogui and Iku ancestral knowledge, which can strengthen the educational experience in terms of environmental and community education of a non-indigenous Colombian school?

How can Colombian schools implement the ancestral knowledge from the ICFSNSM in their pedagogical practices?

Geographic location. The investigation will take place in three different places. The first place is a Wiwa community located in Ubaté, Cundinamarca, Colombia. This location was chosen partly because of convenience because it is closer to my residency than the Sierra Nevada Mountains, but also because the community there has replicated a traditional lifestyle despite being far from their original territory. The community moved to a rural farm about five months ago.

This case study can give evidence of possible applications of AK outside the original territory of the ICSNSM. The second source for the investigation will be an Iku informant who lives in Sasaima, Cundinamarca. Informants have mentioned, that this Iku maintains his traditions, even though he is out of his native territory, and he is living in a region with a similar climate to that of the SNSM, which might facilitate for traditional behaviors such as; bathing in the river, farming, and constructing, similarly as in the native territory. The last part of the research will take place in several Iku school located in Nabusímake, the capital of the Iku settlements. The investigation will also count on the vision of knowledgeable neo-indigenous and experts.

The population of the Sierra Nevada of Santa Marta by Kogui, Iku, Wiwa, and Kankuamo represents a total of 22.134 people (DANE, 2005).

The Iku people inhabit the rivers of Aracataca, Fundación, Ariguani, Palomino, Don Diego, Azúcarbuena and Guatapurí... the state of Cesar, La Guajira y Magdalena; they also occupy the nearby zones near the inferior limit of the reserve in between the Palomino and Don Diego rivers in the north slope and in the west slope and they also inhabit the highlands of the rivers Azúcarbuena and Guatapurí.

The Wiwa population inhabit the municipalities of Dibulla, Riohacha and San Juan del Cesar in the Guajira state and Valledupar and Becerril in the Cesar state. Both cultures enjoy biological diversity due to the different thermic levels that allow for the cultivation of a variety of crops. Rivers come from the snow peaks irrigating the entire mountain until they reach the Caribbean ocean.

Population. The Iku people's economy is based on subsistence agriculture, hunting, and animal grazing. They live in nuclear family farms with access to two different thermic floors, which provides them with a variety of crops that can also be traded. One of the main economic activities of the Iku people is cattle and sheep grazing. Coffee is their main product, but they also have plenty of cacao plantations. (Richel - Dolmatoff, 1946-1966). Due to the unique features of the Iku and Wiwa populations and especially to their capacity of self-sufficiency and pro-environmental behaviors I have selected purposeful sampling. Patton (1990) identifies purposeful sampling's power in the selection of cases that are rich in their formation, so to study the case profoundly. For my study, the Wiwa community in Ubaté, the Iku mambo in Sasaima and the schools in Nabusimake are cases from which one can learn values, habits, and traditions that are of high importance for our society to learn from for us to change our destructive and individualistic environmental behaviors.

The Wiwa community in Ubaté lives in a farm house owned by a person who sympathizes with them. The farm house is located about 30 minutes from the city of Ubaté, and one has to drive up a dirt road for about 15 minutes to reach the house. When it rains it is hard to access, as the dirt road gets muddy, and cars cannot go up. There is a school, about 15 minutes' walk from the house, where the kids attend. The farm has a Spanish colonial house, and the owner of the land gave permission to the mamo to build two traditional houses, one for men and one for women. There are other farm houses, but at a distance from the colonial house. There is a small creek that runs by, but its waters are contaminated. It is cold at night, but the mamo and his family continue to cook with fire. They had some sheep and chickens, when I visited them. They have crops and continue to harvest wood.

The Iku family in Sasaima, is also an extended family. They are located about 45 minutes from the town of Sasaima, up on a mountain. It is hard to access, because one has to pay a private vehicle to get there. The climate and vegetation is similar to that of the Sierra Mountains. They have plantain, yucca, pineapple, tangerines, and other crops that are farmed in the SNSM. They also have chickens, pigs, and turkeys. They also live in a colonial house, but also have other traditional houses, made out of wood and mud, that they constructed. They cook with fire, and sometimes go to a creek that is about 30 minutes from there. The land is owned by a foundation that is supporting them.

I will guarantee to be respectful and to maintain the dignity of the participants by keeping their names anonymous, and by respecting their traditional law, which means that I will not interfere or investigate topics that are sensitive or forbidden for the people to share. I have known the Iku and Wiwa communities for longer than five years, and have a minimum of knowledge to what can be done or not. I am also willing to accept their positions on certain issues. None of the information will be used without their consent, whether orally or written.

3. Problem

General background

Environmental degradation, social conflict, economic and spiritual crisis are increasing and more visible in today's industrialized societies. Despite the apparent technological and human knowledge evolution, the environmental crisis and the social problems are calling for a rapid change in humans' lives and perceptions, as mentioned by Willimson, C. et al. (2014) and Kohn (2013). The formal and informal education has not been adapting at the needed pace to create the necessary change for today's challenges, as mentioned by UNESCO (1997):

“Education plays a dual role, at once in both reproducing certain aspects of current society and preparing students to transform society for the future. These roles are not necessarily mutually exclusive. However, without commitment of all of society to sustainable development, curricula have tended in the past to reproduce an unsustainable culture with intensified environment and development problems rather than empower citizens to think and work towards their solution.”

When people take a glance at the natural environment's degradation, it is visible that business and organizations have been incapable of adapting to the environmental change of the last thirty years (Capra, 2002). Humans with modern beliefs have not changed their perception beyond the human, (Kohn, 2013). The incapability to change from the industrialized human societies is concerning, as the environment and social crisis demand a rapid adaptation if humans are to survive (Capra, 2002, p. 4). This is where ancestral native knowledge can give our society practical tools for reestablishing the human- nature harmony.

According to an investigation by Raymond Pierotti and Daniel Wildcat (2000), traditional ecological knowledge (TEK) with its multidisciplinary aspect can provide solutions to environmental problems such as the use of natural sources, animal rights and ways to protect the natural environment to different interest groups. Their research also hints that TEK can also provide new concepts for Western science, contribute insights, or possibly even new concepts, to Western science and consequently have possibilities in the modification of human behaviors.

For the purpose of this research, the term IAK will be used instead of TEK, because the objective of this research is to find possible solutions not only to environmental education in a school in Colombia, but also to educate for community living, analysis that would be left out with TEK. One of the main problems in industrial civilization, when teaching environmental and community education, is the disconnection and differentiation between knowledge and practice. IAK integrates the knowledge and the praxis, as one is essential for the other, and in it that sense, it is possible for indigenous communities to live and teach environmental and community living and knowledge.

For the purpose of this research, IAK was selected instead of Ancestral Knowledge Systems (AKS), because as mentioned by Linda T. Smith (2012), AKS is presented as a conceptual framework to decolonize and promote a diversity of social science research methodologies and knowledge systems. Such conceptual framework, while significant, does not take into account the praxis and integrative aspect of IAK.

The sources of the environmental and social problematic have been explained from different perspectives, and as the deep ecology authors argue, based on the philosophy and cosmology of Native American traditions; industrialized humans have a perception of relationships with each other and with the cosmos, that is undergoing a holistic crisis. Some authors argue similarly, that the environmental crisis of today is based on a spiritual crisis, which cannot be attributed to the Christian traditions. (Cardenas, 2017 p.36). Other authors

argue that human's historical way of life as hunter-gatherers accounts for 99.5 percent of human history (F. Cárdenas. personal communication, 22nd of April 2017).

This way of life has changed significantly in the last 6000 years, (Gat, 2000; Diamond, 2002; Gurven & Kaplan , 2007) when hunter-gatherers, for some reason, decided to settle in one place instead of moving within a specific territory. Once communities stayed permanently in one territory, and began to forage for food and to hunt animals as they used to, food and prey rapidly was exhausted, and therefore they opted to farm the land. Agriculture allowed for a surplus of food, which gave the families the possibility to grow. Excess food needed to be protected from outsiders, so the idea of landownership surged, and with-it armies and hierarchies (Quinn, 1992). This apparently simple decision reveals today an enormous cost for the survival of all species including humans on our planet (Oppenheimer & Anttila-Hughes, 2016).

Small agricultural communities, which were located in the Fertile Crescent near the Tigris and Euphrates rivers, grew to become the first agricultural civilizations. Such a fertile area was devastated with the agricultural techniques and turned into a desert. Civilizations expanded rapidly consuming the natural sources near them, and appropriating the territories that hunter gatherers needed to survive. With the rise of empires, came specialization of labor. People could pay others for certain jobs and so came science and technology. According to a population growth graph made by Max Roser and Esteban Ortiz-Ospina (2017) shows how the human population grew exponentially in 1900.

On top of the changes in human's way of living from hunter-gatherers to agriculturalists, Singh Ahuti (2015) states that in 1700's the industrial revolution started in Britain and continued to unfold throughout the earth, to almost all regions of the world. Such industrialization has been responsible for the environmental degradation of today. (Allen, 2009). Ahuti demonstrates how the industrial revolution has increased air, water, soil, and noise

pollution. Industries pollute the air by making paper, bricks, metals among other materials used in products used by people in industrial civilization. The water is contaminated with the untreated toxic waste of factories, toilets, and chemical fertilizers. The soil is polluted with the landfills, buried toxic waste, chemicals, and other components that industries produce. The noise pollution comes from the transportation methods, planes, cars, factories, machinery etc.

All the theories presented, coincide in the necessity for humans in modern civilization, who cause environmental degradation, to change behaviors and cultures. A mechanistic perception of the cosmos and a specialization and minimization of every possible aspect is also one of the distinct characteristics that support the belief system of the current technocratic civilization (Prigogine & Stengers, 1984). Such perceptions of life, isolate the interactivity existent among the beings within the web of life and the repercussions of such way of thinking, are visible in today's environmental problems; contamination of water, air, earth, spirit and the misuse of the energy sources.

Current research highlights the undeniable relationship between environmental change and violent conflict and therefore rescues the value of generating a dialogue between indigenous ancestral knowledge (IAK) and formal and informal education. (Bernauer et al, 2012)

In order to generate a dialogue between IAK and the school, it is relevant to have a common speech, which can be achieved by deconstructing, decolonizing (Tuck & Yang, 2012) and clarifying some concepts. For the purpose of generating this dialogue, one significant concept to deconstruct is the conceptualization of poverty. The concept of poverty was defined by ancestral native communities as a lacking capability of self-sufficiency (Adas, 1989, p. 117; Escobar, 2007, p. 49). Later, in colonial times, the conceptualization of poverty was based on the belief that the native populations were incapable of undertaking an economic development.

Deconstructing concepts

The modern invention of poverty, occurred at the beginning of world war II, at the end of the 1940's, and 1950's, and was created by the powerful nations and financial dominant entities (Escobar, 2007). The "discovery" of poverty in Asia, Africa, and Latin America was emphasized as a threat to the "developed" countries. Statements, such as the declaration by the United Nations in 1949, in which the income per capita in the United States was of 1453 dollars, while the income of Indonesia was off 25 cents, supported the necessary political arguments for the United States to launch the "war on poverty" in the "third world" (Escobar, 1996). The magnification of poverty as it is known today is a result of the economic market's impacts on communities, and the displacement of millions of people from their territories, leaving them without water, land and even food (Escobar, 2007).

Another concept to be analyzed is that of *anomia*. According to Durkheim (2001), this notion can be traced back to the pedagogy of XIX, when the educators perceived individualism as a key element for the evolution of human society. Such ideology has been responsible for a children's moral crisis and also augmenting levels of youth suicides, in contemporary generations. The concept of *anomia* resembles the lack of purpose that young generations have of their role in today's industrializing societies.

The current environmental, social, economic and spiritual crisis can be seen through the theory of Daniel Quinn about the leavers and the takers, which makes a historical recount of the establishment of the first agricultural civilization (Quinn, 1992) or through the theory of deep ecology (Capra,1996). The human way of living of the industrializing societies is not in harmony with all the aspects mentioned above. The ancestral native communities have related with integrity in almost all aspects (not idealizing, because the native communities have also problematic, but especially in the environmental, spiritual and social aspects.

Kohn's book "*How Forests Think*" (Kohn, 2013), intends to convince the readers to think beyond an anthropocentric perception. Humans believe, that they are the only important beings and that their survival is independent of the forest's ecology. He identifies today's humanities crisis in some human's incapability to identify and comprehend the animal and non-human realm. Kohn researches the Kuna Quichua speaking village of Ecuador's Amazon.

"Runa in Quichua means "person"; puma means "predator" or "jaguar." (Kohn,2013, p.2) The Runa believe to be part of a continued trans-species communication and relation between the mundane and the spiritual world, which is essential for reestablishing the human-nature harmony.

Recent tendencies of predominantly qualitative worldwide investigations about the indigenous knowledge, applied in the dominant educational system show the possibilities and the necessity for more implementation of the ancestral knowledge. Researchers agree that transmitting indigenous knowledge cannot be considered without the environment and the territory.

Indigenous from the Sierra Nevada Mountains have valuable AK for environmental and community education, according to Reichel-Dolmatoff (1991), the Iku have life cycles, parental systems, lineages, and a cosmology that is mythical and intrinsically related with mother earth. Regions and family's lineages are historically related, their ceremonial houses are a representation of their spirituality and connection with their natural environment.

In terms of the environmental degradation at a global scale, most of the work I found was based on specific regional case studies. In my perspective, such investigations lack the holistic perspective of the indigenous environmental knowledge. Most researchers agree that more investigations need to be done on this topic.

Ethnoeducation in Colombia. Patricia Enciso Patiño published in 2004 for the National Ministry of Education of Colombia -MEN a research of the last ten years about the state of the

art in ethnoeducation. She highlights the outstanding changes in the ethnoeducation in Colombia after the constitution of 1991 was implemented. She remarks that bilingual teachers were considered for ethnic schools and ethnic groups acquired the possibility to learn in their mother language. The communities also became participants in the design of their educational programs (Enciso Patiño, 2004) the creation of regional committees was also sponsored despite the failure of the regional leaders to represent the interests of the community.

In 2001 and 2003 the MEN is restructured, therefore transforming the educational politics, in 2001 there is a lack of counseling to the ethnic groups but in 2003 the MEN reached back to the communities. At that time there was a disagreement from the communities in the implementation of imposed curriculums, there are cases where the communities have created their own curriculums, but according to the author, the case is not applied for all the ethnoeducation curriculums, because of the lack of coherence between the ethnoeducation and the conventional education. The investigation found a high level of state governors ignoring the ethnoeducational law.

The author mentions that most of the research are specializations or refer to the political arena while forgetting the praxis. Some investigations claim the importance of keeping the communal organizations thoroughly participating in the educational process. Research about the evaluations and materials is also significant.

Other investigations found, were grouped in the following dimensions: superior education, ethnoeducation degrees, oral collective history and memory, linguistic, and inter-ethnic coexistence. Another finding has been the creation of many institutions to support the educational processes; some of them are concerned about cultural preservation while others play a function of integrating people into the system.

Conclusions of the author include a lack of research about the ethnic groups, lack of implementation of the ethnoeducation by government officials, illegal armed group's threat and decompose ethnoeducational processes. The government funds ethnoeducation but more is needed. Finally, the process of globalization and mercantilism is in confrontation with the indigenous ancestral knowledge (Enciso, 2004, p. 54).

The Sectorial Plan for 2010-2014 published by the national ministry of education, the contents do not mention ethnoeducation. However, it includes two pages of educational attention to ethnic groups, where it mentions that currently, the ethnic education is under a transition from ethnoeducation to the recognition of appropriated intercultural educational systems. Under such framework, projects such as ethnoeducational community projects PEC or Appropriated Education are implemented. Under agreement, there were two documents, one called "The own educative system for indigenous peoples" (Ministerio de Educación Nacional -MEN, 2010, p. 41).

On the other hand, a recent document published by the National Commission of work and concentration in education for the indigenous peoples (CONTCEPI, 2017) denounces the violation to the right of education of indigenous children in their territories and states that the violations block the procedures to advance the implementation of the own indigenous educational system - SEIP. The National development plan of 2014-2018 and the 13 agreements made in terms of indigenous education are not being followed (CONTCEPI 2017).

According to research made by Carolina Ortíz Ricaurte ethnoeducation processes have been tied in the minds of the Kogui as a way of evangelism. The same rectangular structures used by the failed intents of evangelism between 1562- 1569 by fray Luis Beltrán, are still the schools where ethnoeducation takes place. Even nuns who only speak spanish are teachers of these schools. Some teachers who were taught in these Christian convents up to 3rd or fourth grade are currently the teachers of reading and writing. Kogui communities, prefer not to send

their children to school, and if they do, they send two or three from the community to serve as intermediaries between the Kogui and outsiders. (Ortiz Ricaurte, 2004).

Education is one of the most effective ways of generating change in people and in the future generations, especially in the case of indigenous populations who would benefit from their own education based on the intercultural dialogue. In terms of the education, if the people are to create the necessary change to prevent a massive extinction as many scientist and knowledgeable people have been predicting, there needs to be a change not only in education, because the education happens in school, but in the family and community as well. Therefore, the change should happen in the way of living and simultaneously in the education if adaptation to the current challenges is to succeed.

Problem location (Reference framework)

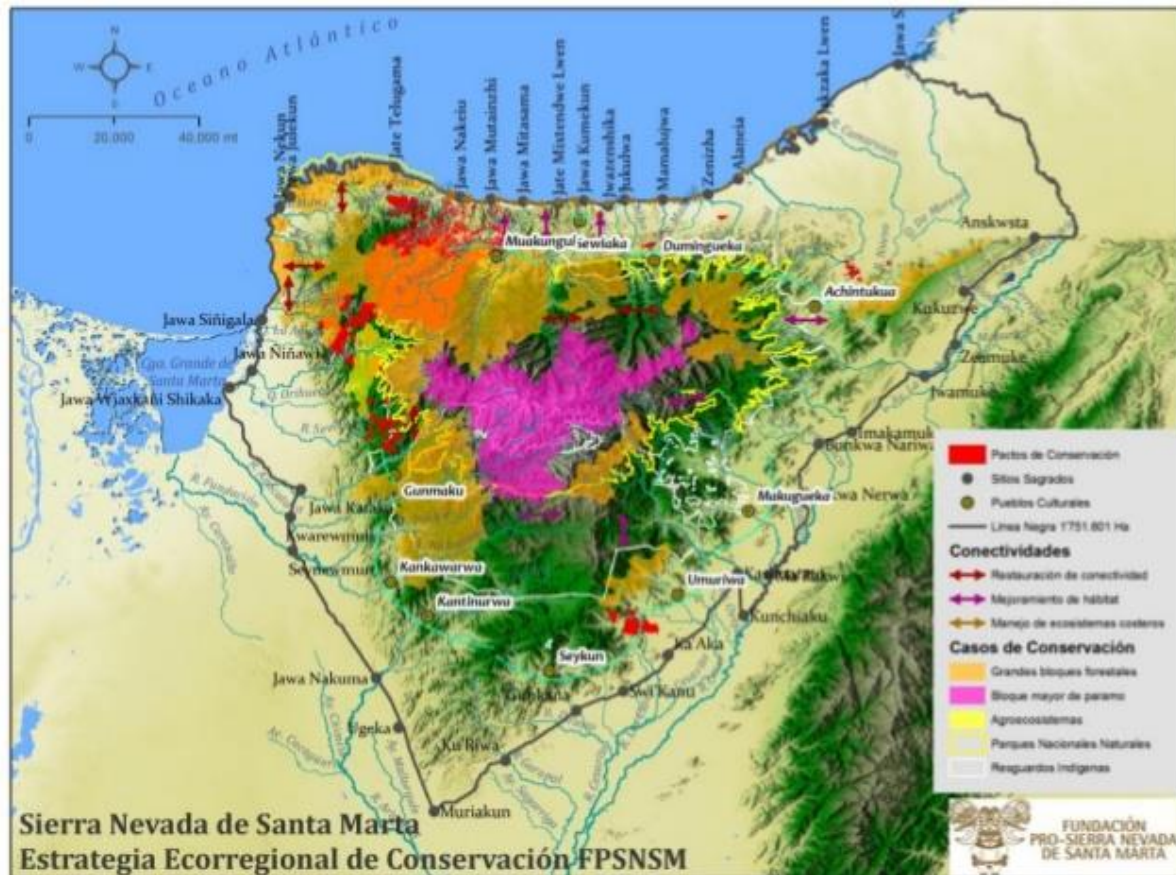


Figure 1. Map of Indigenous Reservations of the Sierra Nevada de Santa Marta, Colombia. Source: Fundación Pro- Sierra Nevada de Santa Marta

Geographic location. The investigation will take place in three different places. The first place is a Wiwa community located in Ubaté, Cundinamarca, Colombia. This location was chosen partly for convenience, because it is closer to my residence compared to the Sierra Nevada Mountains, but also because the community there has replicated a traditional lifestyle despite being far from their original territory. The community moved to a rural farm about five months ago.

This case study can give evidence of possible applications of AK outside the original territory of the ICSNSM. The second source for the research will be an Iku informant who lives in Sasaima, Cundinamarca. Informants have mentioned, that this Iku maintains his

traditions, even though he is out of his native territory, and he is living in a region with a similar climate to that of the SNSM, which might facilitate for traditional behaviors such as; bathing in the river, farming, and constructing, similarly as in the native territory. The last part of the investigation will take place in several Iku school located in Nabusímake, the capital of the Iku settlements. The investigation will also count on the vision of knowledgeable neo-indigenous and experts.

The population of the Sierra Nevada of Santa Marta by Kogui, Iku, Wiwa, and Kankuamo represents a total of 22.134 people (DANE, 2005).

The Iku people inhabit the rivers of Aracataca, Fundación, Ariguaní, Palomino, Don Diego, Azúcarbuena and Guatapurí... the state of Cesar, La Guajira y Magdalena; they also occupy the nearby zones near the inferior limit of the reserve in between the Palomino and Don Diego rivers in the north slope and in the west slope and they also inhabit the highlands of the rivers Azúcarbuena and Guatapurí.

The Wiwa population inhabit the municipalities of Dibulla, Riohacha and San Juan del Cesar in the Guajira state and Valledupar and Becerril in the Cesar state. Both cultures enjoy biological diversity due to the different thermic levels that allow for the cultivation of a variety of crops. Rivers come from the snow peaks irrigating the entire mountain until they reach the Caribbean ocean.

Iku, Kogui and Wiwa

Population. The Iku people's economy is based on subsistence agriculture, hunting, and animal grazing. They live in nuclear family farms with access to two different thermic floors, which provides them with a variety of crops that can also be traded. One of the main economic activities of the Iku people is cattle and sheep grazing. Coffee is their main product, but they also have plenty of cacao plantations. (Richel - Dolmatoff, 1946-1966). Due to the unique

features of the Iku and Wiwa populations and especially to their capacity of self-sufficiency and pro-environmental behaviors I have selected purposeful sampling. Patton (1990) identifies purposeful sampling's power in the selection of cases that are rich in their formation, so to study the case profoundly. For my study, the Wiwa community in Ubaté, the Iku mamó in Sasaima and the schools in Nabusimake are cases from which one can learn values, habits, and traditions that are of high importance for our society to learn from for us to change our destructive and individualistic environmental behaviors.

I will guarantee to be respectful and to maintain the dignity of the participants by keeping their names anonymous, and by respecting their traditional law, which means that I will not interfere or investigate topics that are sensitive or forbidden for the people to share. I have known the Iku and Wiwa communities for longer than five years and have a minimum of knowledge to what can be done or not. I am also willing to accept their positions on certain issues. None of the information will be used without their consent, whether orally or written.

Culture, uses, costumes, sacred sites, Cosmovision and tradition

The Iku, Wiwa, and Kogui have rich traditions, such as family and community cohesion, cultural knowledge that is interconnected with the territory. They know their medicinal plants and territory in detail. Have an AK in a spiritual and physical sense, which transcends to their daily practices. G. Reichel - Dolmatoff, H Bischoff, and T Van Der Hammen were some of the authors who did previous research in the SNSM. According to the cosmovision of the ICFSNSM there are nine spiritual levels, represented with the spiral seen in their "*tutus*" or bags. The Wiwa and Kogui have a ceremonial house only for the men, and a house for the women and children to live while the Iku's mainly share the same house with their wife. The Iku's houses are mainly rectangular and now many are made of wood whereas the Wiwa and Kogui live in circular homes made of mud. Traditionally the Iku's houses were

also circular, in Nabusimake circular houses are still used, whereas in the area of Guamake and La Meseta, located in Guajira and Madgalena, Iku houses are rectangular. Both cultures celebrate rituals with specific dances and do “*pagamentos*” or payments to the different mothers and fathers, spiritual gods.

Language. The three cultures belong to the Chibcha linguistic family. The Iku speak the Iku language, the Wiwa speak Damana, and the Kogui speak Kogui or Kaggaba. All these languages belong to the Chibcha language, but they are distinguished mainly for their phonics and some of the words are different. However, some words are pronounced similarly. Their language resembles their habitat, beliefs, and lifestyle, and therefore it is significant for the preservation of their culture.

Social and political organization. The Iku people are organized in a hierarchical system with the “*Cabildo*”, governors at the top and with a Mamo spiritual community leader who represents each town at the general meetings. They assign “*Semaneros*”, who are in charge of applying the law and the “*Vasallos*” who are the workers. They also have one main cabildo governor representing all the Iku. Nabusimake is their capital. The Wiwa in similarity to the Iku people, are also organized with a governor, commissary and “*cabo*”. The Mamo is the main guide in ensuring that the law of origin is followed by all members of the community. The Kogui also share the same hierarchical system. They assign a mamo, and other elders are also responsible for guiding the community. In similarity to the Iku they also have those who enforce the law, and vasallos.

The law of origin, as stated by the organization of Gonawindua Tayrona, is a set of norms, principles, codes, and procedures that are part of their law of Sé (origin). This law sets the basis to regulate, to order and make the whole universe function. The principals are also a guide to order and relate to the territory, and the natural ecosystems. This law is embodied in their social,

political, economic and cultural organization to maintain the permanence and harmony of the universe.

In the following table presents descriptions of the cosmogony, social, anthropological, cultural and political categories. Within the cosmogony there are two variables: the law of origin and the myths. The social category includes the family, religious and sociolinguistic. The anthropological categories have the variable of the indigenous. In terms of the cultural category, the Iku, Wiwa and Kogui have different languages, dresses, music and cosmovision. The political organization category, has the variable of consensus/ sociocracy which is similar between the Iku, Wiwa and Kogui.

Table 1.:

Characterization of the Indigenous communities of the Sierra Nevada de Santa Marta

Categories	Variables	Dimensions	Subdivisions	Descriptions
Cosmogony	Law of Origin	Spiritual	<i>Pagamentos</i>	Part of the law of origin means paying the earth and the different mothers of life for what is done and used to avoid falling into spiritual debt. The Kogui's divinations are more traditional in that are done with a totumo and bubbles. Whereas the Iku use glass bottles. Both Wiwa, Iku, and Kogui use their fingers for divinations. Felipe Cárdenas (2003) writes that the Kogui divinations, is a process by which the mamo (spiritual leader) consults the divine for advice, it is a significant ritual that influences the management of the indigenous territory. Divinations are related to water, it is a portal to other spiritual levels, and represents the sacred and motherhood.
			Awareness	Through the awareness of the earth and different beings as living and as superiors, a spirituality of respect is generated
			Practice	Through the practice of divinations, the territory is organized and spirituality is practiced for the protection of sacred places.

Categories	Variables	Dimensions	Subdivisions	Descriptions
Cosmogony		Social	Collaboration	The Iku, Wiwa and Kogui cosmogony is based on the collaboration of some families with others in the different farming tasks among others
			The town/ communal work	The people and community work are essential to maintain the social structure since it is in these meetings where the territory is organized, planned, and where intra-family links are generated to sustain the community.
		Environment al	Farm	The sowing is the main source of food for the Iku, Kogui, and Wiwa, it is on the basis of the sowing that the territory is organized that the <i>pagamentos</i> are made and the tradition is maintained.
			Bio-construction	The houses are traditionally constructed of natural materials such as mud and stone and more recently, the wood. The roofs are constructed from different palm leaves. The cylindrical shape of traditional ceilings is a representation of the cosmogony of the Iku, Kogui and Wiwa and their nine spiritual levels as well as the spiritual representation of the cosmos.
		Environment al	Fuel less transportation	They are mainly transported on foot along bridle paths, as well as using mules and oxen to transport their loads.
			Harmonious relationship with water	For these communities, water is a living being which they must let run free so they do not get angry. Their villages are therefore organized along the basins of the main rivers that descend from the Sierra Nevada de Santa Marta. Increasingly, the influence of industrial civilization has fostered in them the use of hoses to extract water for their homes, generating droughts in several areas.
			Lightning sources without fuels.	Its main source of illumination is fire, which spiritually is a deity that is alive and must be lit at all times. Firewood is collected from fallen dry trees and is abundant due to the high amount of vegetation on this mountain.
			Economy	Self-sufficiency

Categories	Variables	Dimensions	Subdivisions	Descriptions
			Trade	They also depend mainly on the exchange of their own products, and the fish that is exchanged with the fishermen of the area. Each time this exchange is more affected by the industrial civilization, as is the case of Puerto Brisa.
			Money	They need money to buy some tools, such as shovels, machetes, needles, cotton cloth, acrylic wool, lighters, radios, cell phones among others. For this they sell their crops and backpacks (mochilas) to get money and also buy the food that is missing in their homes.
			Myths	The Iku, Wiwa and Kogui have several myths, some similar others differ. Among the similar we could say that the creation has a certain similarity. It is the way children are taught about their traditions and culture. Older people sit at night around the fire to tell these stories to the younger ones.
Social	Family	Nuclear	Single-parent	Single-parent families are scarce and in such cases the single mother or single child form an extended family with their parents and grandparents
			Two-parent	More often they tend to have both parents, however, separation and matrimonial reconfiguration are increasingly seen. Nuclear families are few, they usually live in extended families.
		Extended		The extended family is the most common within the Iku, Kogui, and Wiwa population, often adopting grandchildren, nephews and forming large family clans with other relatives.
		Composed		There are few families composed of non-relatives, almost all the unions are by kinship.
Social	Religious	Monotheists	Although there are some Iku converted to Christianity, few are monotheists	Their belief is polytheistic, they have several gods in whom they believe according to the deity they represent. They are related to myths of creation and to the elements of nature. Some of the Iku gods are Serankua and Seinekan.
		Polytheists	The majority of the population maintains its traditional spiritual beliefs despite the Capuchin colonization	
	Sociolinguistic	Dialysis	The Iku, Kogui and Wiwa have hierarchies, they are a civilization, mamos	Their oral and written languages in their cotton clothes, hats or tutusumas, mark a diastratic language that represents the family lineage and

Categories	Variables	Dimensions	Subdivisions	Descriptions
			and governors are in charge, then cabildos follow, comisarios, semaneros, and other members of the community.	belonging in the social hierarchy. The children of mamos and leaders usually speak more clearly in the Iku and Spanish languages, since many of them access formal education.
		Diatopic		Throughout history, Iku and Dumuna have had dialectical variations. There are records of Reichel Dolmatoff's books with traditional words that members of the Iku community no longer recognize, but Mamos try to rescue this ancient dialect.
		Diaphase	Los Iku, Kogui and Wiwa speak the Chibcha language.	The Iku speak Vintukua or Iku and the Wiwa speak Dumuna, the Kogui speak Kaggaba. They are different languages but they share similar sounds. Among them, they can understand a certain vocabulary, but each extended family has its dialects using formal and informal dialects according to the communication.
Anthropological	Indigenous	Iku o Vintukua (Arhuaco) Wiwa (Arsario) Kogui (Kaggaba)	Chibcha family	One of the four families that belongs to the Sierra Nevada Mountains. Each one has its own language, way of dressing, traditions, and cultural knowledge. There are many similarities but also differences among them.
Culture	Iku Wiwa Kogui	language Traditional dresses	Maintain one language, even within Iku there are different dialects, based on the lineages. Traditional dress made out of cotton. Dresses are different between the Kogui, Wiwa and Iku. The Kogui and Wiwa mamos are the only ones in the community who wears a cylindrical hat, whereas the Iku men should all wear the "tutusuma" which is flat at the top. The Wiwa and Kogui women wear a shorter skirt just underneath the knees and have one shoulder uncovered. Kogui women wear red necklaces, but the Iku women wear	Through oral tradition and the transmission of traditional music. Daily environmental practices of life are means to teach young people and transmit traditions to new generations

Categories	Variables	Dimensions	Subdivisions	Descriptions
			different color necklaces, especially black.	
		Traditional Music	Keep the dance and ceremonies with traditional music. The Iku have introduced the accordion as part of their traditional music, due to the “vallenato” influence in their culture. Differently the Kogui and Wiwa play the “quizzi” (instrument similar to the gaita, but with four holes) There is a female and male quizzi. The dance is also different between the Kogui, Wiwa and Iku, And the chants are related to different natural deity.	
		Cosmo-vision	The earth as a living being with different mothers for the spiritual beings of nature based on myths of creation and others	
Political/ Ideology	Consensus/ sociocracy	Cabildo governor	Legal representative for the government	The decisions are taken at meetings in the town in the canzamaría (Iku) and chunzuá (Dumuna) cuscumuy (Kaggaba). For the Iku both men and women participate in the meetings in the canzamaría, whereas only Kogui and Wiwa men participate in the meetings.
		Mamo	Makes decisions for the community	
		<i>cabildos</i>	Represent certain communities in front of the Colombian government	
		<i>Comisarios/ Semaneros</i>	The ones who enforce the law	
		Town people	Families and other members of the community	

Note: Self constructed

4. Objectives

General

Through this investigation, I intend to identify and explore the key elements of the necessary knowledge from the Wiwa, Kogui and Iku that can be adapted in Colombian schools.

Specific

Describe the way that the Iku, Kogui and Wiwa's ancestral knowledge can be implemented in the pedagogical practices of a school in Colombia.

Identify and describe the ancestral Wiwa and Iku practices that can promote a dialogue with a school in terms of appropriation, meanings, visions of the world, and social practices that can nurture the school for environmental and community education.

5. Justification

In furtherance of finding solutions to resolve the environmental and social crisis of today, I will be studying the practices in the way of living of the ICSNSM and more specifically that of the Iku, Wiwa and Kogui people. I will be looking into the specific practices that I find significant and possible to apply in formal and informal education in a school in Colombia.

I have chosen the ICFSNSM and non-hunter-gatherer tribes (HGT), despite the fact that HGT have a lower ecological footprint, because, in similarity to the current industrialized civilization, ICFSNSM share an agricultural civilization component. They also have a unique way, in which they organize their territory, in relation to their cosmovision of the earth, perceiving the planet as a living being that is interconnected to the spiritual realm.

The seminomadic life of the ICFSNSM, because they usually have two or three houses in different altitudes, provides them with a variety of crops from all these elevations. The fact that they stay for a period of time in one house and then move to another, allows the earth and the soil to rest and recover from the drainage of nutrients caused by agriculture and permanent settlements.

The agricultural subsistence method of the ICFSNSM is similar to that of the current predominant civilization and therefore facilitates a dialogue between industrial civilization and indigenous traditional communities in many aspects. It would be more difficult for people from modern industrial civilization to learn knowledge and to practice it, if it comes from tribes that are hunter gatherers. Despite the fact, that the ICFSNSM's survive based on an agricultural lifestyle, they maintain certain practices of hunting and gathering, as well as other subsistence forms, which are in agreement with the Origin Law of the four indigenous groups of the SNSM. Such an agreement is relevant because it reduces the ecological footprint of their farming practices.

Kogui, Wiwa, Iku, and people have similarities in their costumes and traditions however they have some differences. Each culture speaks a different derivate of the Chibcha language. They all share their appreciation for cotton as a representation of the purity and the snow located at the top the Sierra Mountains. However, their dresses have different written languages on them, their lengths and forms are different. Each culture belongs to a different lineage and has a different strength or mission to accomplish.

For example, it is common, for people around the region to believe that the Wiwa and Kogui are better with plants and with divinations. The Iku are believed to be more warriors, but it does not mean they don't have knowledgeable spiritual and healing mamos. I found the Wiwa and Iku more appropriate for my research due to the proximity of the Wiwa in Ubaté,

and the Iku mamo in Sasaima. But also, because the Iku speak more Spanish and that can make my understanding easier.

6. Theoretical Framework

State of the art and theoretical perspective

Based on the need to solve environmental and social problems, through the implementation of Indigenous Ancestral Knowledge (IAK) in formal and informal education, I searched for the literature that can give me a background on this topic. To do so, I used databases such as ProQuest, Jstor, Google academics and Scimago, narrowing my search to scientific journals, and doctoral thesis.

I limited my search to the last five years and used keywords such as “indigenous education”, “ethnoeducation”, “environmental education”, “traditional knowledge”, “ancestral knowledge”, “environmental changes AND violent conflict”, “environmental degradation” “main causes of environmental pollution” “global warming”, Iku, Kogui, and Wiwa, indigenous from the Sierra Nevada Mountains, “Waldorf AND natural environment” “Waldorf AND indigenous knowledge”, “epistemologies of the south” among other words I used to find relevant and recent information on this topic.

Predominantly quantitative case studies. In terms of environmental changes caused by human industrial practices and the repercussions of environmental degradation, there is an extensive amount of research predominantly quantitative and mainly based on case studies in certain regions or specific populations. Such findings are a first part of what I consider a problematic; the western or eurocentric perspective of knowledge overspecializes and therefore eliminates holistic comprehension of global scale difficulties (Escobar, 2007). Society’s

specialization characteristic of “western” or capitalist knowledge contrasts with the holistic Ancestral Knowledge of indigenous communities such as the ICFSNSM.

Research at a global scale, supports that today’s environmental and social problems are caused by the way of living of the current human industrial capitalist civilization. However, authors have not published such comprehensive and inter-disciplinary investigations in the last five years; therefore, I limited my inclusion to one recent article, which specifies the variable of violent conflict as a consequence of environmental change.

Environmental change and violent conflict. The research by Bernauer et al. (2012), studies the way in which environmental changes increment the risk of violent conflict. The authors present a comparison between two main arguments; the Neo-Malthusian and the Cornucopian. Thomas Malthus, the author of the Neo-Malthusian theory, mentions in his “Essay on the Principle of Population”, that the density of human population is limited by natural sources, and therefore social development is a result of such relation.

On the other hand, the Cornucopian thought, based on Adam Smith’s ideas of market self-regulation, denies the increase of the population’s density and argues that the population density is decreasing and therefore will even out over time. Cornucopians also believe that the earth’s natural sources are infinite. They continue to look at the favored methodology in the existing literature and question the problematic of empirical research for such a topic. The last investigation question looks into the research priorities of the scientist community in relation to the topic.

The authors highlight the significance of scientific consensus on the impact of environmental changes on violent conflict. To do so they take into consideration concepts such as environmental changes, violent conflict, adaptation, and migration. The research is based on a qualitative methodology, which studies quantitative and qualitative research. The authors find

that environmental changes may, under certain circumstances, augment the probabilities of violent conflict, but not in a systematic way and not in all cases. They assure that more research needs to be done on this topic.

One of the arguments used by the authors missed the point in connecting environmental changes to violent conflict. This argument focuses on the misunderstandings of the qualitative and quantitative scientific community. However, the research is important and pertinent, because it highlights the undeniable relationship between environmental change and violent conflict and is significant in order to look for solutions, such as the dialogue between indigenous ancestral knowledge and formal and informal education.

Worldwide application of indigenous wisdom .To find solutions to the environmental destruction caused by societies' way of living, which is leading humanity to self-destruction, I searched at a global scale into the application of indigenous knowledge and western knowledge in environmental education and found four investigations, all of them prevailing the qualitative methodology.

Authors Kapyrka and Dockstator (2012) look for the similarities between “western” and indigenous worldviews about the earth’s resources. In a similar way, the study by Van Every-Albert, C.M. (2008) focuses on the differences between Western and ancestral native education in order to identify the behaviors of indigenous students in western schools.

The third research study by Anuik and Gillies (2012) changes the comparative form of the other studies. This study describes the instruction of two university teachers after learning indigenous knowledge from working at the Aboriginal Learning Knowledge Center (ABLKC). This study conceptualized and described the characteristics of indigenous knowledge applied in higher education settings.

Waldorf pedagogy and indigenous knowledge. The fourth research selected, was the work written by Siu (2011), which looks for the ways that schools and schooling, can improve to help vulnerable children. This study differs from the other ones, as it does not take into consideration indigenous knowledge. However, I included it, because Rudolf Steiner's Waldorf pedagogy has a lot in common with the ancestral indigenous ways of knowledge transmission and its relation to the natural environment. On top of that, Waldorf pedagogy has been known to develop children's body, inner will, imagination, well-nurtured emotional life and academic results. A study (Beste Einsichten 1981), found that Waldorf graduates did three times better in the Abitur tests than students from the State schools (Lange de Souza, 2012). In order to show the benefits that IAK could have if implemented to a Colombian school I will refer to the study of Siu, since Waldorf pedagogy and IAK have many similarities.

What I found most significant about Siu's study is that its field of study is centered on children who are at risk and this is the situation, where our schooling system is failing the most.

Qualitative research methodology is predominant, due to the necessity of a perception beyond the quantifiable to understand the indigenous knowledge and the possibilities for its implementation in the dominant educational system. The qualitative methodology will be selected for the purpose of this research; however quantitative research on this topic, especially in ethnographic work is also relevant.

The first two studies share similar concepts such as indigenous knowledge, western environmental education, "two-world" pedagogical approaches, decolonization, whereas the study written by Anuik and Gillies (2012) adds concepts like emotional reasoning, learning spirit, learning blocks, and modern education. In a similar way, Siu (2011) fundamentally based her research around the concept of student engagement that in other words is the learning spirit.

The first research by Kapyrka and Dockstator (2012) and the second work by Van Every-Albert, C.M. (2008) relate in that the concepts are not centered in the students' possibilities of learning, but rather on the characteristics of each type of knowledge. On the other hand, the studies by Anuik and Gillies, (2012) and Siu (2011) look more into the teaching practices needed to engage the child in the pedagogy so that the child will consciously immerse themselves in "the learning spirit" (Anuik & Gillies, 2012), look for inner freedom and finally achieve a full potential. The concepts of the two last studies highlight the importance of the whole child and the necessary pedagogical approach that is at its deepest for social transformation.

The results found by Siu (2011) fill the reader with hope, the six students considered at risk responded with appropriation; however, she invites more researchers to expand on the issue and add more support to her findings. Kapyrka and Dockstator (2012) argue that applying indigenous and "western" knowledge's for environmental education will enlighten students and teachers and create a connection between the "western civilization" and the native communities, which at the end will be the source of creation for more alternative solutions to environmental problems.

I want to highlight the importance of such findings. However, it is important to have in mind that the authors come from the "Western" scientific knowledge perspective, which is visible in the choice of words they use (for example the concept of resources). The articulation of such a word portrays a materialistic perspective of the earth, looking at it as only a resource to be utilized by humans indefinitely.

Research (Sandoval, 2016, p.19), advocates for the decolonization of scientific research. The author cites the definition of colonialism from Tuck and Yang (2012) as "the biopolitical and geopolitical management of people, land, flora and fauna within the 'domestic' borders of the imperial nation" and defines decolonization as "a process by which an Indigenous people

or nation- state frees itself from the violence of colonialism that forcibly impact(ed) the health of the people, land, water, and air. In addition, decolonization processes liberate colonized groups from imposed structures that include political, economic, social, spiritual, agricultural, and epistemological approaches to living, learning, and dying”.

This research considers that environmental education, while important and with significant contributions to society, has been incapable of transforming society in terms of students and communities appropriation of environmental behaviors within their daily lives. Such an argument is similarly presented in the research by Moreno Sandoval (2016), which clarifies that ecological knowledge informed the research; however, Ancestral Knowledge Systems (AKS) go beyond theory and low- environmental impact practices such as school recycling, into a way of living that is interconnected with the territory and the earth. Passed from one generation to the next.

The study of Van Every-Albert, C.M. (2008) finds that indigenous education connects teaching to community, culture, and language, while according to him, some ideologies from the “western” knowledge lack these aspects. Western education also focuses on the individual while native education functions based on cooperative learning. This is not to ignore that indigenous communities have gone through changes of acculturation, have lost traditions and in many cases suffer from addictions and domestic violence. The last results presented by Anuik and Gillies (2012) claim that all students have learning capabilities, but it is the teacher’s responsibility to inspire the student to think critically, with passion and heart to surpass fears that obstruct the learning process. To do so, Anuik and Gillies (2012), who are teachers, have applied indigenous knowledge to do a unification of heart and brain and introduced such an approach into the Canadian educational system.

The questions presented by Anuik and Gillies (2012) investigate the ways that indigenous knowledge contributes to educator’s practices and the initial communication step with the

ancestral native knowledge. Differently, Van Every-Albert, C.M. (2008) as a native wants to find her own responsibilities as a scholar and for other scholars while supporting her native community's' struggle and needs to know how to do it. The feelings as an indigenous individual give her another dimension of understanding, one that "western minded investigators" need. This can be understood in her findings, where she positions the language, culture, and community essential for indigenous knowledge learning.

From a personal situation, Siu (2011) as a teacher loses a student and is wondering how public alternative schools apply Waldorf philosophy and what selection process they use to select the Waldorf educational elements and disregard others. She also is in search of the engagement that at-risk children have with the pedagogy, and what engages six specific cases of at-risk youth in Waldorf pedagogy. The inner spirit motivation of Siu (2011) for the wellbeing of humanity's large community guides her to look into Rudolf Steiner's pedagogy, which similarly invites family members to apply indigenous ancestral knowledge and to consider the community as oneself.

Steiner considers that humans develop in septennials, meaning that children from zero to seven should be together because older children will practice patience and the younger ones can learn from the older ones. This is an aspect that can be seen in the indigenous communities, as children with age diversity grow together and help each other. Another similarity that the Waldorf pedagogy has with the indigenous education is that of playing with natural materials. Steiner believed that natural elements were essential for the development of psycho-motricity and imagination in children.

Kapyrka and Dockstator (2012) also pose two important questions: What is the knowledge system of indigenous societies and western cultures? What are the differences between indigenous worldviews and western worldviews in terms of environment/ land? The authors try to understand the indigenous knowledge to find common grounds with "western"

knowledge. The second question touches on a very important point, which understands indigenous knowledge and the possibilities for its transmission; indigenous knowledge and ancestral indigenous education cannot be considered without the environment and the territory.

To continue knitting on this issue, I narrow my research about ICFSNSM, because they have shown to have an ancestral way of life that is the best (in comparison to other human societies) in protecting the natural environment (Perez, at all, 2017, p. 21 & Cárdenas, 2003, 1997). They also practice a life order that maintains an ancestral; language, culture, heritage, knowledge transmission, connection to the territory, the community and can inspire the learning spirit in children.

To begin, I will review the work of Perez, Higuera and Bonilla (2017). The investigation examines the deforestation, road construction, and development prevention, in the protected areas of the Sierra Nevada of Santa Marta (SNSM). To do this the authors question the protective function of the black line, of the national parks and of indigenous reserves.

The objective of the study is to offer empirical evidence about the consequences of protected areas delimitations of the SNSM. The authors also want to look at the human footprint effect seen through deforestation, settlements and road construction. Main concepts include protected areas, deforestation and regression discontinuity, which is in similarity looking at development and multiculturalism through an ethnography of the Iku people of the SNSM.

The author is interested in learning about the ways in which Iku people are affected by politics and multiculturalism. He also wants to understand how the Iku negotiate with the government. To do so, he tries to comprehend the cosmovision and its differences with the capitalist ideology. In addition, he focuses on how it shapes the laws, governing system, and the effects the government's capitalist incorporation efforts and its problems caused to the Iku. Lastly, he is interested in the concept of transnationality within indigenous politics.

Both studies are looking at development as a problematic for the indigenous of the SNSM, but each one from a different perspective. Perez et al. (2017) believes development is a problem for humanity at large due to the impacts it has on the environment; however, the authors present a contradiction when saying that tourism is a form of environmental protection. This is not the main interest of my study, but tourism is developed and therefore is problematic. As mentioned by Tane (2014), multiculturalism affects indigenous culture, and therefore their capacity to continue a traditional life order, which is the key to environmental protection. The main concepts presented by Tane (2014) like decolonization, multiculturalism, the ontology of politics, and colonial-modernity, are all connected to a historical context, which is necessary to understand the environmental and social problematics that initiated some centuries ago.

Perez et al. (2017) implement a quantitative methodology, using regression discontinuity (RD) analysis, to compare the pixels to contrast the borders of the protected areas, it is important to make known that such an analysis undermines the notion that the communal land and land reserve are the same. What really matters are the places where the communities inhabit and the capacity of protection they have. Perez et al. (2017) dismissed that national parks and indigenous reserve land overlap. The black line area is under the indigenous jurisdiction, but it is not in fact respected by the government, meaning that indigenous have paper rights but not “inhabiting rights” of all those territories.

Duque Cañas's study (2009) relates to the last two studies mentioned, in that the value of the territory for the indigenous from the SNSM clashes with the capitalist economic perception of “territory” and with the cultural and ethnic considerations claimed by the indigenous, in contrast with the idea of a hegemonic society. The author is interested in the selection process of certain people throughout history, while others are forgotten. He wants to know why the dominant history has assigned less value to the indigenous populations. The author shares with Tane (2014) and with Cordoba (2006) the concept of sacred. Tane (2014),

Duque Cañas (2009) and Cordoba (2006) perceive the sacredness within the noetics of nature, defined in the abstract of the book *Noetics of Nature* (Foltz, 2013) as “the highest mode of understanding, a view that persists both in many non-Western cultures and in Eastern Christianity, where "theoria physike," or the illumined understanding of creation that follows the purification of the heart, is seen to provide deeper insights into nature than the discursive rationality modernity has used to dominate and conquer it”. This noetics of nature is embedded in the indigenous cultural practices and in all aspects of the ethnicities of the SNSM.

All three studies just mentioned favor the qualitative methodology. Tane (2014) and Cordoba (2006) implement an exploratory scope. Tane (2014) does an ethnographic work focusing on doing an observation on a case study of the Iku peoples. Cordoba (2006) also conducts observations making his case study the town of Gotshezhi in the region of Guachaca SNSM inhabited by the Wiwa people. The fact that sacredness is the basis for three of the five studies I selected about the SNSM native communities shows the significance of the sacredness when teaching and implementing indigenous ancestral knowledge for environmental education and other community educational aspects.

Cordoba’s research (2006) out of all the other studies gives the most relevance to the sacredness, which can be seen in the formulation of his questions: How does “the sacred” create territory, community, and belonging? One of his goals would be to study “the sacred” in Gotshezhi in order to understand its contributions to the construction of territory. He defines the sacred sites as “the vehicle through which a set of ritual practices establishes a social behavior and a system of relations from where the tradition is constructed and reconstructed” (Cordoba, 2006). Unfortunately, the author does not mention the observational records used during the field study which makes his findings less credible.

The last study by Murillo (2009) ties all of these aspects mentioned in all the other articles and research studies. In this study, the author traces the struggle of an Iku community to

decolonize their school in Simunurwa from European knowledge and epistemologies. To achieve this, she wants to learn how indigenous teachers introduce ancestral knowledge into the school. In addition, she studies what the differences of indigenous and European knowledge are, how the educational practices need to transform to incorporate the ancestral knowledge and how this knowledge is assimilated in the structure of the colonized school.

In terms of the methodological preferences, the author in accordance with the other studies, uses ethnographic description, historical research methods, classroom observations, face-to-face interviews and participates in community events to collect data for her qualitative and apparently quantitative methodologies. Despite her methodological descriptions, she does not mention the questions used for the interviews nor the information from the data collection, which makes us question the validity of her outcomes.

The concepts used by Murillo (2009), such as decolonization and trans-locality are key elements for the continuation of my work because it places the problematic within a historical context that needs to be re-examined if changes are to occur within the formal and informal schooling system. Would the decolonization be from the European knowledge? From the capitalist economic education? When did humans change their way of living to one that unbalances our natural environment?

The results found by Perez et al. (2017) show that although the black line does not prevent deforestation, indigenous reserves and national parks have reduced deforestation significantly. Such statement is in part contradicting to the findings of Duque Cañas (2009) who argues that despite the favoring land rights given by the Colombian constitution of 1991 to the indigenous communities, the government continues creating “strategic interventions” in indigenous jurisdiction zones. Recent history has shown the real face of the government favoring the interests of big economic players and ignoring the land rights of the indigenous from the SNSM more clearly seen in the black line territory. In similarity Felipe Cárdenas (2016) presents some

of the effects of global capitalism and a neoliberal agenda in Colombia, which can be seen in violence and exploitation of natural sources from the corporate state despite the negative consequences that mining, petrol extraction, palm oil, bananas bring to the society.

Duque Cañas (2009) assures that the indigenous are organizing their discourse to make their needs be known, they are resisting incorporation and struggling for autonomous self-sufficiency through their culture and ancestral knowledge. The author also highlights the importance of the knowledge of these ethnic groups for the protection of the environment and for all humanity. Tane (2014) shares common views with Duque Cañas (2009) when he reminds us of the importance of learning and transferring the indigenous cultural knowledge from such ethnicities, because it holds “transformative potential for society at large” (Tane, 2014, p.33). He also states, “Indigenocentric culture-territory has possibilities as a political model of governance outside of identity-based categories” (Tane, 2014, p.277).

Cordoba (2006) provides the reader with more detailed information to understand better the Wiwa’s community’s importance; in his findings about the sacredness of the territory, which also translates to respect for the natural environment and all beings, Cordoba (2006) perceives that Wiwa’s perception, appropriation, distribution, and daily activities, are the most significant factors for the construction of the sacred territory. The Wiwa, argues Cordoba, (2006) create their territory based on their people’s perception, through the Mamo’s (spiritual leader) appropriation and distribution of the territory, and by living, walking and doing sacred activities with it.

The last research findings of Murillo (2009) assures that the Iku school of Simunurwa is undergoing and adapting to a decolonization process through the appropriation of cultural, linguistic, and ancestral knowledge in the hands of the Iku. In the same way that the Iku are rethinking and adapting schooling to their own needs; so, can we be doing in our schools to create the type of education that can respond to today’s and tomorrow’s challenges.

When connecting aspects such as communal learning, the connection of the heart with the learning process, the sacredness to the territory, the importance of the inner consciousness and the teacher's guidance in the awakening of the learning spirit of children, the ancestral knowledge of the Iku, Wiwa, and Kogui people can be a guide for environmental and humanistic schools in Colombia; the sacred law of origin is a set of beliefs of the indigenous from the SNSM, to have a more organized and harmonious life, while considering the whole child and our interconnectedness with our natural environment and all living beings.

All studies presented in this state of the art, point toward highlighting the necessity for adaptation, for changing our educational system, and our way of relating to others, including our natural environment. To do so, we have the example of the living ancestral indigenous culture from the SNSM, (with imperfections, like we all have) at risk of disappearing, but who are communicating the importance in similarity to all the mentioned scientists, who call for changing our way of living to one that can be more harmonious. If the Iku in Simunurwa can decolonize and adapt their school to today and tomorrow's needs, why can't we save our humanity from a sixth anthropogenic mass extinction? Like many scientists are claiming.

Conceptual framework

The structuring concepts for the research are: i) ancestral knowledge, ii) environmental education, iii) community education and iv) school.

i) Ancestral knowledge

Defining ancestral knowledge (AK) has been a difficult attempt of decolonizing knowledge, because of the lack of academic definitions, but one of the best academic definitions for AK is that of Chica Cañas et al (2016), who describes it as “related with cosmovisions... ecological, social. political, natural, economic, educative system which has a diversity of artists with meanings based on nature spirituality, mother earth, the costumes, the

beliefs, the rolls of the community members, the family roll, art esthetics, peculiar agricultural practices, traditional medicines obtained from plants and chaman protagonist roll and midwives.”

ii) Environmental education

The following concept of environmental education can be seen as appropriate for this research, because of its similarity between the theory and the practice of environmental education. “Producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution.” (Stapp, 1969) To complement this definition, environmental education is to develop environmentally literate citizens with the core concepts and skills needed to take responsible action with regard to the natural environment. Educational practices commonly draw from combinations of outdoor, experiential, and environmental education. (Adkins, Carol & Simmons, Bora, 2002)

iii) Community education

The third concept by Henry Morris states that it is “The welfare of communities, and the vigour and prosperity of their social life, depend on the extent to which centers of unfettered initiative can be developed within them. The great task of education is to convert society into a series of cultural communities...where every local community would become an education society, and education would not merely be a consequence of good government, but good government a consequence of education.” (Poster and Krüger, 1990, p. 10)

iv) School

The last concept to be defined is that of "school", and I found Dewey's definition to be significant for the profound essence it captures:

"...the general pattern of school organization (by which I mean the relations of pupils to one another and to the teachers) constitutes the school a kind of institution sharply marked off from other social institutions. Call up in imagination the ordinary school-room, its time-schedules, schemes of classification, of examination and promotion, of rules of order..." (Dewey, 1997)

And to complement Dewey's definition of school I want to add a key element of mass education of Boli, Ramirez and Meyer (1985): "Even the most statist or collectivist modern systems have this individualist character in the sense that they also define the individual as the central unit of action..."

7. Methodology

As much as the environmental problematic is escalating, the social problematic is also at an increase, for example, seen in violence, poverty, anomia and climate change as stated by Williamson, C. et al. (2014) and Durkheim (2001). The research by Dessler (1994) highlights the undeniable relationship between environmental change and violent conflict. In terms of environmental harmonious human relationships, several authors recognize the importance of ancestral indigenous knowledge as a teaching method that can transform the school (Murillo, 2009; Anuik & Gullies, 2012).

Utilized methodology. The study will be a qualitative multi-contextualized ethnography. According to Patton (2002), a qualitative study is a method that can use three types of data collection. The first type is in-depth open-ended interviews; the second is participant observation and the last written documents. These types of interviews are appropriate for my

study because through the interviews I can get quotations that can capture the feelings, experiences and ancestral knowledge present in the practices of the Wiwa, Iku and Kogui that could carry a dialogue with members of a Colombian school.

The observations can be useful for my study because in them I can capture detailed descriptions of traditional activities and behaviors that are good for the environment and promote communal living. In a similar way, Bonilla-Castro and Rodriguez (1995) mention the characteristics of a qualitative study, and I find them appropriate for my research due to the conceptualization of reality which is based on behaviors, knowledge, attitudes, and values that guide the Iku, Kogui and Wiwa.

I have selected a multi-contextualized ethnography based on Santos-Fraile and Masso's (2017) definition, which states that ethnography is "a descriptive account of a community or culture, usually one located outside of the West" (Atkinson, 2007, p.1). Another appropriate definition for selecting a multi-contextualized ethnography is that of George Marcus's (1998):

"This ethnography moves out from the single sites and local situations of conventional ethnographic research designs to examine the circulation of cultural meanings, objects, and identities in diffuse time-space. This mode defines for itself an object of study that cannot be accounted for ethnographically by remaining focused on a single site of intensive investigation. Rather, it involves a more fragmented and comparative approach to examining varied instantiations of a peculiar phenomenon, brought together in unity by the creative constructivism of the ethnographer, who establishes links and commonalities, often through extended metaphor" (Marcus, 1998, pp. 78-80)

This definition and paradigm respond to my interest of study. A descriptive research would be more appropriate to understand behaviors, organization, and other aspects that would be left out using other types of study. However, according to Ibañez (2002), the social truth

needs double instruments; that of words and number to be able to enter that reality. Indigenous cultures are unique in their interrelationship with each other and their environment and as an outsider, one must observe profoundly to understand the complex networks within non-industrialized societies.

Instruments and role of the researcher

Instruments. For this ethnographic study, the main instrument used were field notes accompanied by interviews. The field notes allowed me through observations to describe interactions, activities and other means of communication that provided my investigation with significant evidence to give a substantial answer to research questions. As stated by Emerson and Fretz (1995), field notes taken in ethnographic research were characterized for a systematic, profound, and detailed writing of the observations and learned experiences in two records. One of extended and one of the condensed notes that were used during my participation in the daily activities of the community as stated by Cárdenas (2017).

The interview is one of the most powerful tools for the investigation, as it can access the mental and the daily social activities and relationships of the participants (López & Deslauriers, 2011). This instrument gave me a perspective from the lens of the Iku, Kogui and Wiwa, in order to have a direct perception without the interference of my personal point of view. The interviews were applied while visiting the Wiwa community in Ubaté, the community of the Iku mamo in Sasaima and finally while visiting the school in Nabusimake.

Methodological triangulation was implemented through the comparative method of two different instruments, in this case, the field notes, and the interviews. I chose this type of triangulation due to the lack of possibility of checking back with the participants, as their cultural background made them uncomfortable when asking them back on their own answers. Despite that checking with a researcher peer would have been of my preference; I was only

able to do data collection, which was analyzed with Atlas ti, with a mixture of both emergent and a priori codes. Both emergent codes from interviews and field notes were triangulated for validity. Also, such data was mainly feasible only for me to gather due to the far distances where the subjects were.

Role of the researcher. I prefer taking the role of the participant observer because that can give me the time and space to reflect on the communal activities while participating as well. Collaborating partly in the daily activities is a way for the community members to perceive me as an ally and not as a complete outsider observing them. Interviews will take place also in their communities so that they do not feel out of their comfort zone, which could make them change the results of their answers.

8. Path to harmony

In order to give an answer to the two questions for the investigation, line- by- line textual analysis was performed. Data was linked from interviews and field notes, categories emerged until the point that no more categories could arise. The main emergent categories that came up will be presented in the following chart with the corresponding definitions which are a result of code network maps, the information in the code's quotations and code relations. Table 3 is a comparison of emergent and a priori codes and their semantic relationship.

Table 2.

Interview and field notes emergent codes definitions

Emergent Codes	Definition
Advice	Is the transmission of knowledge from parents, elders, teachers and mamo about what children should and shouldn't do with respect to mother earth and all living beings, including rocks. It also means teaching children to collaborate, to sustain self-sufficiency and the culture.

Care	Are the spiritual and daily activities to protect mother earth and all that sustains life. For example the rivers, water springs, the soil from the sun...
Experience and example teaching/ learning	Daily practices that parents, family and community do with the children that teach the habits needed to take care of the earth and promote community living, such as sustainable agriculture, own arts, native language, spirituality, cultural values, among other.
Home/ house	It is the first ancestral knowledge, in the spiritual and physical, it represents the cosmogony of the initiation. The first house for the mamo is the place where the community and family starts. The home/ house also transcends to the territory as all beings are interconnected.
Mamo	Is the main authority in the communities. He has divine powers and can communicate with the spirits and gods. He is constantly "adivinando", which means asking the gods for advice, about territorial planning. He tells the community where they can farm, the sacred places, where they can make houses etc. He calls for reunions and also solves family problems.
Mother earth	Living being, we all depend on to live, sacred and part of creation. Should be respected, honored and cared for. Payment should be made for all that is taken from her.
Reunion	It is a community meeting, which takes place in the community town. The Iku include women and children in these meetings, whereas the Kogui and Wiwa meet only with men. It is a unified place and time to solve community conflicts, to transmit the ancestral knowledge to children, to do ceremonies, to pay spiritually to the earth and gods, and to organize the territory.
Self-sufficiency	It is the capability of the people to produce and harvest what they need without destroying their natural environment. Activities that are essential to be self-sufficient include farming, animal grazing, harvesting food, wood, fishing, hunting, making organic fertilizer, and collaboration.
Teacher	A community member who can transmit the ancestral knowledge and the "civilized" knowledge to children. Usually should speak Ikun and Castellano.
Territorial planning	It is a spiritual and physical process by which the mamo, authorities and communities' members organize their territory in accordance to their Law of Origin and cultural beliefs, to maintain their essential connection and respect for mother earth. This process initiates with the "adivinanza" from the mamo and with reunions where in the spiritual realm thoughts are

	organized. Then community members follow the spiritual planification and work the earth for the consented purpose.
Water	Is part of people, it is sacred and alive. It has a spirit and should be cared for. Water should be carried home with a “jicaro”, so that it does not dry up. Water springs need to be protected. Water plants should protect riverbeds. Payments are also important for water.

Note: Self constructed with data from interviews and field notes.

Table 3

Comparative table between a priori codes that coincide with emergent codes and their semantic relation

A priori Codes	Sense and meaning	Emergent codes	Sense and meaning	Semantic relation
Community education	As stated by Henry Morris "The welfare of communities, and the vigour and prosperity of their social life, depend on the extent to which centers of unfettered initiative can be developed within them. The great task of education is to convert society into a series of cultural communities...where every local community would become an education society, and education would not merely be a consequence of good government, but good	Community	A group of people from all ages with spiritual, cultural, and environmental agreements. The first step to start a community is to have a reunion, to spiritually plan the town. Then to farm in the area where the town will be, followed by the construction of the mamó's house and after the houses from members of the community.	These words have a semantic homonymy relation. The a- priori definition by Seay refers to education as a force from institutions towards people, on the other hand, the emergent code defines education as a process that sprouts from the community through the family and school for the people. Therefore the purpose of one word to that of the other one is different.

A priori Codes	Sense and meaning	Emergent codes	Sense and meaning	Semantic relation
	government a consequence of education.” (Poster and Krüger, 1990, p. 10)			
Spirituality/sacredness	“...the vehicle through which a set of ritual practices, which establish a social behavior and a system of relations from where the tradition is constructed and reconstructed”. (Córdoba, 2006)	Spirituality/sacredness	The search for divine guidance in relation to earthly decisions. The connections with the cosmos, through a mamó, spiritual guide. Daily practice of respect, ceremony, positive thinking and cultural beliefs in unity with the earth and the cosmos.	The following words are related semantically as a hyponymy and co-hyponymy, because the a priori word can hold part of the emergent code definition “...daily practice of respect, ceremony, and positive thinking...” as part of the set ritual practices.
Ancestral knowledge	“Related with cosmovisions... ecological, social. political, natural, economic, educative system which has a diversity of artists with meanings based on nature spirituality, mother earth, the costumes, the beliefs, the rolls of the		Are all the spiritual, cultural, ecological, social beliefs and costumes, which are passed from one generation to the next. The most important ones are farming, harvesting, fishing, hunting, cleaning the crops, building traditional houses (with mud, adobes, or wood, palm roofs).To	The following words are related semantically as a hyponymy and co-hyponymy, because the a priori word can contain the detailed descriptions of cosmovisions, ecological, social and natural.

A priori Codes	Sense and meaning	Emergent codes	Sense and meaning	Semantic relation
	community members, the family roll, art esthetics, peculiar agricultural practices, traditional medicines obtained from plants and chaman protagonist roll and midwives.”		dance and chant, to pray, to knit mochilas, and cloth out of cotton for the clothes. To make panela, and other foods for the house. To cook with fire, and therefore harvest wood. To heal with plants and to chew ayu for divine connection. To respect mother earth and all the elements that sustain us like the water, wind, earth, fire, trees and so on.	
School	“...the general pattern of school organization (by which I mean the relations of pupils to one another and to the teachers) constitutes the school, a kind of institution sharply marked off from other social institutions. Call up in	School	It is the place where children and young come to learn about ancestral knowledge and also about: mathematics, social sciences, naturals, castellano, own language, own arts, dance, geo-history, animal care and management, and crop cultivation. The school starts at 8 am and ends at 3 pm when it is sunny	These words have a semantic homonymy relation. The a priori code school refers to an institution where students are concealed in a room, whereas the emergent code school in a classroom, but also outside of it. Students are not limited to be indoors only. Times schedules is also a significant difference, because schools from IFSNSM start at a specific

A priori Codes	Sense and meaning	Emergent codes	Sense and meaning	Semantic relation
	<p>imagination the ordinary school-room, its time-schedules, schemes of classification, of examination and promotion, of rules of order..."</p>		<p>and 1 pm when it is going to rain. There are no class schedules, they have classes depending on the moon phase. The evaluations are done orally and with cooperation of other students. The mammo is the main person to guide the school process and activities in collaboration with the teachers and community members.</p>	<p>time, but classes are also flexible to be adapted based on the weather, moon phases, and mammo and community necessities. Schemes of classification are not as visible in the emergent school code. They do have an order and law, but as all aspects of life are interconnected, professions are not classified so sharply. Examinations are also different and oriented more towards community education.</p>

A priori Codes	Sense and meaning	Emergent codes	Sense and meaning	Semantic relation
Environmental Education	“Producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution.”(Stapp, 1969)	Environmental Education	Environmental education is not a concept that came up as emergent, whereas education did come up. This is because the environmental education is part of the lives of people. The ancestral knowledge that is applied every day is interconnected with environmental education. Education could be defined as the transmission of ancestral knowledge, from one generation to the next.	These words have a semantic Hyponymy and also homonymy relation. Hyponymy, because the a priori code can contain the definition of ancestral knowledge within citizenry that is knowledgeable concerning the biophysical environment. However, it also has a homonymy semantic relation, because it refers to citizenry instead of people, therefore limiting that knowledge to city people. The a priori term also defines it as motivation to work towards solving environmental problems, but it does not mention the importance of integrating environmental living practices within people’s lives in order to solve environmental problems.

Note: Selconstructed based on codes of other authors and new emerging codes

I was able to gather an extensive amount of valuable information to provide ideas to respond to the general objective, because I was able to expand on the necessary knowledge from the Wiwa, Kogui and Iku, that can lead me to eventually transform a Colombian school, and therefore the living practices of those involved, however from the educational institutions AK can be difficult to apply, because of different limitations, such as structural design, which is not ecological, and cannot be modified by the students. Institutional ideologies of progress, poverty, and capitalism are also factors that can make the process of applying AK from the ICFSNSM in an educational institution more difficult. Some levels of AK can be introduced, based on the institutional flexibility, for example, gardens, looms, and weaving can be reintroduced. Some institutions, for example the Montecervino Waldorf School in Chia, Colombia have classes in which students learn carpentry, and weaving.

With willingness, humans whose lifestyle and beliefs are destroying our natural environment and are leading our society to a crisis, can learn some aspects from AK. For such a transition to occur there are many difficulties, such as cultural adaptations, spiritual differences, and lack of value of indigenous knowledge. Therefore, the topic needs to be explored more deeply. There needs to be more research done that could continue to show capitalist societies the importance of AK knowledge for environmental and community education. Understanding AK can be a hard process, especially for formal education and market orientated educational institutions

Categories and an extensive amount of codes emerged from the field notes, interviews and research, categories and codes such as children, care, community, mother earth, experience/ example teaching and learning, water, advice, ancestral knowledge, reunion, food, territorial planning and mamo. All of these codes and their semantic connections provide essential information to answer the specific objectives.

Objective 1

One of the most important results from the data collected, is that the Wiwa, Kogui and Iku AK, which can strengthen the educational experience in terms of environmental and community education of a non- indigenous Colombian school, AK is interconnected with the daily lives of indigenous. I will present it verbatim in the original Spanish language in order to maintain the essence of the message.

“Ilda me explicó que le quedaba difícil responder mi pregunta de cómo enseñan a los niños a cuidar la tierra, porque el cuidado de la tierra es una forma de vida que va relacionada a la cultura Iku de manera integral y que por lo tanto ver este tema como un componente separado era muy difícil y sería muy superficial.” (Field notes, august 2018).

Meaning that one ancestral knowledge, needs of the other AK to function properly, as stated by Ilda Zalabata, in interview in 2018 ⁴:

“La cultura Arhuaca de por si tiene este punto incluido. Para nosotros, la tierra es la madre, para nosotros es algo vivencial. Desde antes de nacer se le enseña que la tierra es la madre y todos sus elementos: el agua es la sangre, los cerros son los senos, y cada parte de la tierra tiene una similitud al cuerpo humano. Desde pequeños le enseñamos a los niños a no rayar los árboles, la tierra, a no jugar con barro.” (I. Zalabata, personal communication, 2018, p.4)

⁴ See Appendix C

In the following paragraphs, I will present the results out of the analysis of the interview's network map and will triangulate that information with the network map of the field notes I will also add it verbatim in the original language to support the information.

The IAK contain the ICFSNSM beliefs about mother earth, the school, children/ child role and responsibilities, spirituality, and ancestral knowledge. First mother earth should be cared for, meaning that the “civilized” are the main cause of contamination, because they cut trees, they want cars to mobilize among other distrustful activities they do daily. Therefore, the indigenous feel a need to converse with the “civilized”. To do so, they teach their children and learn about industrial civilization and castellano language.

As mentioned verbally in an interview with Luis Torres (2017) ⁵:

”Quieren aprender cada vez más cosas de los civiles, entonces cada vez quieren tumbar más árboles, cada vez quieren tener más, más y más... No es que uno se baje al pueblo y que vive todo que con luz, con carro, que no sé qué. Eso los mamos dicen que eso contamina mucho la tierra ¿sí? Pero que nosotros somos Arhuacos entonces que tenemos que ser Arhuacos, no tenemos que hacer lo mismo que los civiles así es lo que nos dicen los mamos...” (L. Torres, personal communication, 2017, p. 2)

Mother earth sustains human lives, water is part of mother earth, and water has a memory and is alive. The rain is also sacred, is water and is part of mother earth. To maintain the water's memory, water should not be trapped in a house; it has to be free, and must be collected in a “totumo”. One must pay back to water. Water springs need to be protected and children should

⁵ See Appendix B

not play in the water; they should respect it, because it is sacred. Otherwise, it will stop raining and water will dry up. Water plants are essential for protecting water springs and riverbeds. Mother earth needs of children and community members contact.

Mamo Manuel Kogui (2018) in an interview included in Appendix A said:

“Como si tú te caes, ay! no tiene que decir porque la tierra es lo que nos da vida y nosotros estamos encima de esos. Entonces tiene que decirle que hay que respetarla (la madre tierra). En el agua, los niños no tienen que ir como a nadar mucho mucho porque hay que respetar ese río. Siempre tiene que decirle, ustedes niños no tienen que nadar mucho, porque tenemos que respetar, ¿ya?” (Mamo Manuel, personal communication, 2018, p.1)

To teach environmental and community education for a non- indigenous school it is important to teach respect, because all of us are a representation of the earth, if she is sick, we are sick. Children and people should not move rocks, because they have spirits, and as the earth should be respected. To that respect Mamo Manuel Kogui in the interview conducted in 2018⁶ said the following:

“Los árboles no tiene que como cortar un brazo, así una rama porque esa es su mano, ¿no? No tiene que cortar porque lastiman, como a nosotros... Entonces hay que respetar la piedra. Cuando está en un puesto no tenemos que cambiar. Entonces hay que respetar la tierra, la tierra cuando está ahí en un puesto no tiene que cambiar. Decir a los niños, no esa piedra no tiene que cambiar...” (Mamo Manuel, personal communication, 2018, p.2)

⁶ See Appendix A

In schools, teachers and children form relationships, children from 0-5 years old are more susceptible to interiorize mamó's and elder's advice about spirituality and self-sufficiency. Children collaborate by harvesting wood for the cooking fire; they also harvest fruits, plantain, ñame, among other foods. Children also help with animal care and management, they feed the pigs and chickens, move the horses, donkeys, sheep and cows to areas with grass. Children also help to bring water from the river for the homes. As mentioned verbally in an interview with Andrés Villafañe (2018) ⁷:

“A el niño en la casa lo mandan tempranito a buscar el agua, en un balde o calabazo. El niño va a buscar bruzco o chamizo. Ayuda a picarle caña al cerdo. La niña está ayudando a prender el fogón a atizarlo. Junto a todo esto hacen “marneika”, que son actividades antes del desayuno, como ir a cambiar el mulo o el burro. Van a la huerta a limpiar. De ahí ya vienen, los que vienen, llegan a la escuela y salen entre la 1:00 y las 3:00 de la tarde” (A. Villafañe, personal communication, 2018, p. 8)

Children are also an essential part of the society, because they farm starting at the age of two. They make organic fertilizers with food leftovers and manure, clean the area that will be farmed, they prepare the soil by mixing it with the fertilizer, and plant. Eventually they help their families and teachers to clean the crops until they can harvest. The girls help to cook the food with fire. There is a rich diversity of foods in the Sierra Mountains, which is a memory that can also be rescued in our territory.

⁷ See Appendix C

In order to achieve self-sufficiency, all members of the community from all ages should collaborate. The towns and communities are constructed from this collaboration. The family is the seed for the creation of community. The family is a consequence of strong spiritual beliefs, guided from the mamó, who serves as an intermediary between the family and the gods. This spirituality is the main pillar for territorial planning. Spirituality sustains also the self, and with the self in order, parents, father and mother can be united for the purpose of the family and in consequence the community. This concept is reinforced in the interview conducted with Namahuqui, member of the Chibcha Indigenous Group in 2018 ⁸:

“Hay un primer conocimiento ancestral que es el de la casa, el de la casa, que es decir el comprender la casa como el hogar, y la oportunidad en la casa de compartir los diferentes saberes. ¿No? Eso es muy importante, porque en la casa está comprendido digamos la familia. Y la familia es la que transmite el conocimiento.”

(Namahuki, personal communication, 2018, p.1)

Through spirituality, the culture is sustained and the dance and chants are means for the families and community to connect with the spiritual realm. The own arts, for women knitting tutus (mochilas) and for men knitting the cloth for the clothes and busá (baby carrying bag) are representations of the spirituality. They also paint their territory on the cloth they make. Andrés Villafañe declared the following in the interview conducted in 2018 ⁹:

“Si, ese es un principio natural. Los niños participan con los mayores en las reuniones. Así se quedan dormidos, ahí están aprendiendo la participación en los trabajos comunitarios. Ya sea en la huerta, en la finca, en los trabajos espirituales.

⁸ See Annex F

⁹ See Appendix C

Así aprenden a vivir en comunidad.” (A. Villafaña, personal communication, 2018, p.8)

The descriptions just mentioned are the ancestral knowledge identified and described that can be implemented in a non-indigenous school to teach environmental education and community living. The environmental education is present in all aspects of Iku, Kogui and Wiwa’s life, and although environmental education is not clearly recognized with such terminology, their spiritual beliefs honor mother earth and the cosmos as the gods, who need to be respected and cared for. The main form of transmitting the ancestral knowledge for environmental and community education, is for mamó (leaders), community members, families, parents and children to experience ancestral knowledge in their daily habits, and consequently through example teach children and simultaneously learn ancestral knowledge. Coherence in what we think, we say and we do.

To triangulate the information presented in the interviews with that of the field notes I will analyze the code’s network map and then compare the result of the analysis with that of the interviews.

The Iku have their families and their schools. In their families the indigenous children and young collaborate by harvesting foods, they farm crops like yuca and plantain, the wood they bring is to light the fire to cook in the house. The mamó (spiritual leader) has an important role as guardian of the tradition. Clothes are made from cotton thread and mochilas (bags) out of maguey. The home and house are also a key component of the culture. Houses are made with

palm roofs, with adobes and rocks. As mentioned verbally in 2018 in an interview with Juan Antonio Izquierdo, member of the Iku indigenous group ¹⁰:

“Hay ciertas actividades en artes propias, las niñas trabajan el tejido, teñido de los materiales, el algodón, la lana y el fique y mientras tanto los muchachos trabajan la ebanistería.” (J.A, Izquierdo, personal communication, 2018, p.12).

The schools have classrooms, with shared and single tables. The classrooms have walls; however, class is also taken outdoors. There is a similarity between the Iku schools and formal schools: both have paid teachers, which also creates economic inequalities among indigenous families. Children walk from the school to their home through the paths. They also help their families with many outdoor activities. The teacher gives the lesson in Ikun and in Castellano, which is a foreign language from the “civilized”. In the ICFSNSM have schools for ages up to 18 years. There are nurseries, primary schools and high schools. Ramon Mestre Gonzalez, teacher in Nabusimake said the following in the interview conducted in 2018¹¹:

“Acá es más retirado y la gente se apropia más de la cultura. Por el suelo. Aquí vienen hablando el idioma Iku. Acá en la escuela, lo que se les enseña más es a aprender el castellano. Para que así no se les dificulte más adelante en el bachillerato. Ellos salen siendo bilingües” (R. Mestre, personal communication, 2018, p.13).

Despite the fact that the result seems to not mention clearly how their ancestral knowledge teaches environmental and community education that could be implemented in a Colombian

¹⁰ See Appendix C

¹¹ See Appendix C

school, the environmental education is immersed in the cultural and spiritual beliefs, in the daily practices, and in their priorities.

Ramón Mestre Gonzalez (2018)¹² also stated:

“Aquí se les enseña a cultivar la tierra. A observar las cosechas que hacen. Se les enseña que antes de sembrar hay que pagar a las semillas. Muchas cosas que los estudiantes lo tienen encuentra en casa, pero en la escuela no lo aplican o lo aplican de otra forma.” (R. Mestre, personal communication, 2018, p.12)

When looking at the results from the interviews in comparison to that of the field notes, one can see that both results are similar, the ancestral knowledge identified and described was the same. However, the interviews provided the research with more data than the field notes. Some of the categories that emerged were the same, such as children, mamó, community (in the interviews it was mentioned more times than in the field notes), care, mother earth, water, advice, but experience example teaching/learning did not come up, because it was a specific word selected when coding that was not applied on the other analysis, but it could have been applied.

Objective 2

How can non-indigenous Colombian schools implement the ancestral knowledge from the ICFSNSM in their pedagogical practices?

Non- indigenous Colombian schools can implement the ancestral knowledge from the ICFSNSM in their pedagogical practices in the same way that the ICSNSM start to organize a

¹² See Appendix C

town or a community. To start a school that can implement ancestral knowledge there has to be a meeting, to spiritually plan the school. The people in this meeting should come to spiritual, cultural, and environmental agreements. One of the challenges is that in modern society, people lack the guidance of a mamo, people have different spiritual beliefs, elders and children are usually excluded from the means of production. Parents are forced to work in jobs that do not allow them to practice ancestral knowledge nor environmental, community practices. The Arhuaco indigenous member Luis Torres (2018)¹³ in an interview conducted for this study said the following:

“Pero primero para organizar siempre como siempre cada uno trae su bastimento sus cosas de su casa, cada gente. Entonces ahí tienen comida para reunirse para y hablar de las cosas, de lo que van a hacer. Y ahí siembran, siembran harto. Y cuando se van cada uno para su casa tal fecha vamos a limpiar los bastimentos, entonces dentro de dos tres meses llegan, trabajan todos, dos días, tres días limpian todo el bastimento. Entonces ahí se van cada uno, como dentro de un año menos, siete meses. Y cuando la comida está hecha, entonces llevan marrano, cosas así y alguien pone un ganado, para comer. Entonces ahí si se van toda la gente a reunirse dos meses, tres meses, a hablar lo que van a hacer. Vamos a pagar el pago de la lluvia” (L. Torres, personal communication, 2018, p.5)

Despite all these challenges, in the same way that the ICSNSM start reunions to make their communities, we have also the same capabilities to learn and to find spiritual, cultural, and environmental agreements. Another challenge we are facing is that of the land, owning property is expensive, for indigenous communities this is a given. At the same time, the school would

¹³ See Appendix B

need to have a parallel community, in which parents and family can experience the ancestral knowledge at home, so that children see and live the coherence from what is taught at school and at home.

So, the first step to implement the ancestral knowledge from the Iku, Kogui and Wiwa in a Colombian school would be to convene a meeting with people who share a similar spirituality and who are interested in including aspects of AK in that spirituality, and finally to form a school and/ or possibly a community. Several meetings would need to take place to plan the school in thoughts, and in the spiritual realm.

One of the important decisions would be that of land, where the school and/or community will be constructed. What kind of legal figure will that land have, a society? a foundation? Where will the money for the land come from? Renting a house to start a school is also a possibility, but there are several inconveniences with a rented house. One is that farming, having animals, and bio-constructions would be limited in a space that belongs to someone else. Rent is expensive, and it has to be economically self- sustaining. A big advantage for environmental and community education would be for the land to have a creek or river that passes through. Coming up with a common plan in terms of the land between the interested people, can materialize the idea.

Cultural and environmental agreements should also be discussed in the first meetings. If there is an elder who has got experience in the organization and planning of ecovillages, it would be of great support, that way the community has a spiritual guide. However, the power of that person should be regulated, in the same way that mamos and authorities in the SNSM have to meet with a group of elders to ensure that decisions are made for the well-being of all and not for individual interests.

Once the people interested are able to purchase land, or to rent a space, the second step could take place, and that would be the construction of the school. In comparison to the way that communities are formed in the SNSM, the first structure that would be constructed would be that of the school and not the mamo or leader's house, because in this case, families who live mainly from the capitalist system are dependent on the school's support in order for them to work and sustain their families. Those interested in forming part of the community project, through the school's support, could gradually start withdrawing their necessity of survival from the capitalist economic system and slowly transcend to live partly from the land.

The school should be constructed with the support of the group / community and especially the children. The construction should be made of mud, adobes, wood, according to the necessities of the particular land where it will be built. It would be best to use the natural materials that belong to the territory. Due to the fact that those who are likely to be interested in such a project grew up in or still rely on the capitalist system, electricity would be necessary.

The classes could begin with the construction of all the different elements needed for the school. For example, there could be a class for students to make solar panels with old CDs, bike-machines with generators, and windmills. A dry toilet could also be included, because the indigenous from the SNSM have more space to do their necessities without contaminating, but on the other hand, land is smaller and more populated near the cities, where this project would probably take place. In the section 10. Advice, there is more information to give an answer to the objective 2.

I will include the institutional educational project (PEI) that could possibly be implemented. Each subject will have its own study plan and syllabus. The subjects taught in school will be: own arts (knitting with a needle, two needles and crochet, knitting with a loom, and carpentry), mathematics, social science, English, native language, bio-construction and

eco-technologies, naturals, castellano, dance, music, animal care and management, chemistry and earth cultivation (food harvesting, making organic fertilizer, cleaning plants, foraging for wood, and collecting water)

Next, I will present the school schedule, because it can give the reader a better idea of what a day in the school would look like. The subjects that are separated by a / means that every other day that subject is taught. If there are three separated by a /, each day a different subject will be taught.

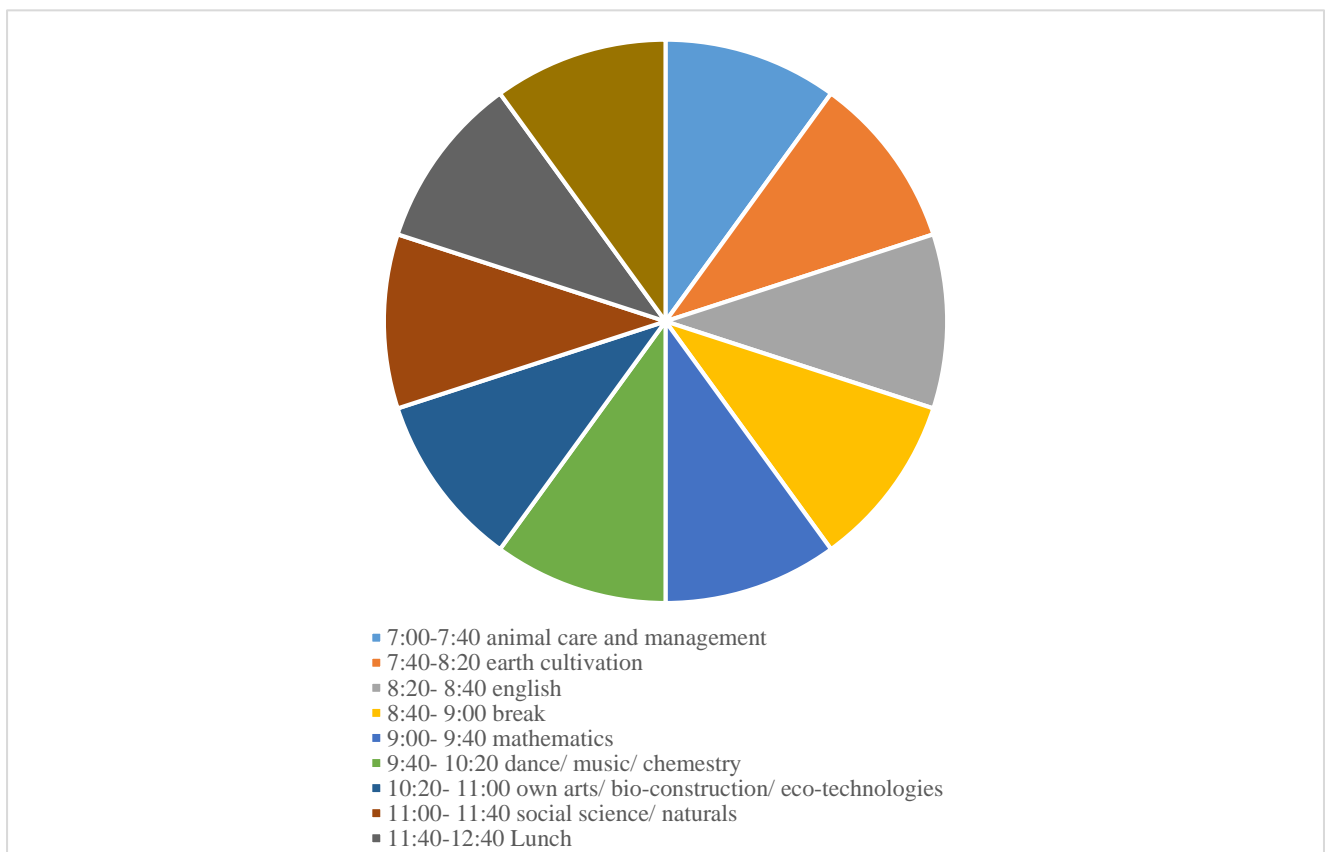


Figure 2: Graph of Ancestral Knowledge and Ecopedagogy School's Schedule, Self - Construted with data from the interviews and field notes.

9. Dialogue

The results are congruent with the ideas presented in the theoretical framework. For example: the western or Eurocentric perspective of knowledge overspecializes and therefore eliminates holistic comprehension of global scale problematics (Escobar, 2007). This was one of the results found, because while doing the research many teachers explained that they could not isolate the environmental and community education from the holistic culture of the ICFSNSM.

The results show an answer to the UNESCO's concern that the formal and informal education has not been adapting at the needed pace to create the necessary change for today's challenges. The results provide an example of a dialogue that could succeed between IAK and predominant educational systems.

IAK also provides a solution to Kohn's problematic (2013), and if it is implemented correctly, it can change humans with modern beliefs to post-modern beliefs, and have people think beyond the human in the same way regenerate transspecies communication, in the same way that the Runa from Ecuador do with the jaguar and other animals that they hunt. The results also provide information for humans from the industrialized human societies to change and provide solutions to the environment and social crisis. The educational process should be an intercultural dialogue, in which indigenous communities have some principals that are not negotiable, such as considering the earth as sacred, and that all other beings should be respected as well. The idea that the community and family is the main pillar to sustain the Iku, Kogui and Wiwa culture is another aspect that can not be negotiated with. In relation to Capra's (2002) arguments, ancestral knowledge is in the memory of every human, so a rapid adaptation is possible so that humans could survive.

Ancestral native knowledge can give our society practical tools for reestablishing the human- nature harmony. IAK can be integrated into people's lives in a slow transition process; so that humans can take the time they need to change. Ancestral knowledge applied at home and school can also be comfortable when mixed with some green technologies, such as energy generators that function with renewable energy sources. Homes can be intelligent, but not in the sense that is used in modern societies, that refer to intelligent as automatic, but environmentally disastrous.

Earthships designed by Michael Reynolds¹⁴ are a good transition home for people who come from industrialized societies. Earthships are real intelligent homes, because it has the design to be self- sustaining; it gathers its own rainwater and uses it efficiently. It is powered with energy from wind or sun. It has its food production within the house. It is constructed with recycled materials and also with some natural materials.

According to the results, and if deep ecology authors are correct; humans that depend on a capitalist economy are undergoing a holistic crisis with others and with the cosmos, more specifically with the earth. Spirituality emerged as one of the most important codes in the results, and a spirituality that considers the earth as sacred, like Cárdenas (2017) mentioned, that today's environmental crisis is based on a spiritual crisis.

IAK is necessary when looking at Bernauer's (2012) research, which states that environmental change increases the risk of violent conflict, the results could be presented also as a solution to decrease environmental change and therefore diminish the risk of violent conflict. Adas and Escobar defined capitalist societies as poor, because of their lacking capability of self-sufficiency. The findings of this research are a key for making capitalists

¹⁴ The Earthship architecture concept began to take shape in the 1970s by architect Michael Reynolds. In 2000, Michael Reynolds and his team came to build the first residential earthship in Boingt (Belgium). Since then many earthships have been built around the world.

society's rich, not in material accumulation, but for their capacity to continue inhabiting mother earth.

Community education based on AK from the SNSM could also be a solution for current society's anomia, because Durkheim identified individualism in the teaching pedagogy of 1800's as one of the main reasons for anomia. Therefore, community education, which focuses on teaching students for community living, and also motivates children to cooperate instead of compete could change the rates of suicides in young and children. IAK is also a way to make youth's life's more meaningful, because in the ICFSNSM, children and young are essential for the functioning of the community and the family. Making children feel truly that they contribute with food, water, wood... to their families and communities is crucial to decrease anomia.

Fishing, swimming in the river, farming, living in a forest with animals is entertaining for children, so teaching practices that take place in natural places will probably engage the child more than if he is forced to learn within four white walls specially in large cities. AK can be the answer to Anuik and Gillies, (2012) and Siu (2011). Ancestral knowledge teaching practices could engage the child in the pedagogy so that the child will consciously get involved for "the learning spirit" and look for inner freedom and finally achieve a full potential

AK from the ICFSNSM is a way to decolonize knowledge and simultaneously people who are managed by the imperial nation as defined by Tuck and Yang (2012). It is the way to free humans from the violence that is impacting people's health, earth, water and air.

Duque Cañas's study (2006) becomes more relevant at the moment of making the school and the community, because Duque Cañas recognized the difference of the perception about the territory, that people from capitalists' societies have in comparison to indigenous. So, one of the main challenges is that of acquiring the land, and also how to perceive the territory so that environmental education and cooperative learning can take place.

Cordoba (2006) perceived in his research that Wiwa's perception, appropriation, distribution, and daily activities, were the most significant factors for the construction of the sacred territory. According to the results of this research, all factors mentioned by Cordoba are relevant, but the holistic perception, which interconnects the children, with the spiritual, with the family, the community, the mamo, mother earth, and collaboration, the experience example teaching and learning cannot be reduced to just perceptions, appropriation...



Figure 3. Picture of Traditional mud house in the primary school in Nabusimake, SNSM. Source: Self taken



Figure 4. Picture of Traditional family house in Nabusimake, SNSM. Source: Self taken.

10. Advice

I recommend, based on the results of the present research, to implement ancestral knowledge from the ICFSNSM to conform schools, or include what is feasible in schools' curriculums to be able to teach environmental and community education. To do so more research needs to be done around the topic of the sacred, as mentioned by Felipe Cárdenas (2017), assuring that the environmental crisis is a consequence of the desacralization of the cosmos, the earth and all the elements within it, from the main spiritualities. Cárdenas reminds us of the importance of reconnecting main religions such as Christianity with the natural, in order for humans to live in harmony with their environment.

AK from ICFSNSM should be contextualized to the knowledge of the territory where it will be applied. With the collaboration of Flor Yolima Garcia, Claudia Cecilia Venegas, Daniel Alejandro Escobar and Jorge Luis Rodriguez from the Masters in Education of the University of La Sabana, we elaborated a proposal of a project of ecological and community homeschool named Ecopedagogical and Ancestral Knowledge Homeschool, which will be presented below.

Proposal of Ecopedagogical and Ancestral Knowledge Homeschool

General objective. Design a homeschool with an eco-pedagogical and communal curricular focus located in the ecological reserve of the municipality of Tabio, Colombia.

Specific Objectives.

- i. Make a diagnosis of the population and its necessities in environmental and social formation.
- ii. Construct the academic and pedagogical guidelines to channel an eco-pedagogical and ancestral Iku, Wiwa and Kogui pedagogical curricular emphasis.

- iii. Elaborate the eco-pedagogical, communal and of ancestral Iku, Wiwa and Kogui pedagogy education institutional project (PEI).
- iv. Construct the methodology of implementation.
- v. Analyze the pertinence, relevance and viability.

Theoretical fundamentals. Concepts: School, ecological, community pedagogy, community, competences in sustainability, ecopedagogy, PEI.

Faced with the ecological and social problems of today, the need to create new pedagogical proposals to create pro environmental and social changes, in the habits of students in schools, is increasingly important. The Ministry of the Environment and the National System of the Environment SINA (1993) law 99 article 5, 31, 102 requires the adoption of plans, teaching programs and the curriculum in environmental education at the different levels of national education. Likewise, community life is a fundamental factor for the development of a more ecologically sustainable life (Baldi & García, 2005).

The indigenous communities of Colombia and the world have stood out for their pro-environmental behavior, seen in the abundant and rich jungles in which they live, providing a large percentage of oxygen and water to the world (Valderrama, 2010). For this reason, the ancestral knowledge of indigenous communities are examples of pro-environmental and community behaviors that may be appropriate as a pedagogical methodology to teach future generations in schools to relate harmoniously with their natural and social environment.

In order to select Colombian indigenous populations that maintain pro-environmental and community customs from which we can learn and implement practices, it is important to consider similarity as a significant element for students to feel some familiarity and therefore open channels of similarity that facilitate the exchange of knowledge.

The Iku, Wiwa and Kogui populations of the Sierra Nevada de Santa Marta have a way of life similar to ours in that their subsistence is agriculture, being a more sedentary civilization

than the hunter-gatherers of the Amazon jungles, the Putumayo and Chocó. They also maintain communication habits that are similar to us, such as clothing, and communication codes (pointing with the index finger). On the other hand, the similarities between our civilization and the hunter-gatherers are scarce, for example, the costumes that the indigenous communities of Choco or Amazon use are little similar to our customs.

One of the main differences between the Iku and Wiwa with us, of course, is that their agriculture is more sustainable and ecologically responsible than ours. Their sowing practices begin with deep consultations made by the mother or community leader to different mothers (sources of life, representatives of different places and elements). This consultation or divination is part of the territorial order, which integrates since its inception principles of respect for our natural environment.

Similarly, the daily habits of these communities are based on respect for the earth, water, air and fire as living beings with whom one must have a harmonious relationship. Among the daily practices, the Iku and Wiwa make payments, that is, they pay the different mothers for the planting, house or other activity that they want to do. It is mainly this component of respect for our environment, that gives us the possibility of proposing a school educational project, that is composed of a pedagogical methodology that integrates the ancestral knowledge of the Iku and Wiwa communities of the Sierra Nevada de Santa Marta.

Pedagogical foundation. This school educational project will be based on the implementation of community pedagogy (Civis & Riera, 2007), eco-pedagogy and the indigenous ancestral pedagogy Wiwa and Iku. Community pedagogy is defined by Quintana (1991) as the education of the community for the community. Quintana assures us that when the community is educated to promote community life [...] community education takes place. Eco-pedagogy (Gutiérrez & Prado, 2015) is based on the principles of the Earth Charter UNESCO (2000); which mainly emphasizes the visibility of the interrelation of all living and

non-living beings that inhabit the earth. The Earth Charter highlights four principles that must be implemented in the formulation of an IEP oriented towards sustainability and community life.

First, education should foster in people a worldview of the human being, as an interdependent being of other species and of the biodiversity of the earth for its existence, integrating values such as compassion, spirituality, and co-responsibility. Second, take care of the community of life with understanding, compassion and love. The common good must go beyond the personal good, in terms of the management of natural sources. Third, encourage the deployment of just, participatory, sustainable and peaceful societies. Finally, ensure and recognize that the needs of the next generations are decisive in the actions of present generations. Also transmit traditions and values that promote habits and customs that promote a harmonious life for the next generations on earth.

As for the Iku, Wiwa and Kogui indigenous pedagogy, the systematization of these traditional knowledge is about to be carried out. This pedagogy will be based on the results of the research that Gaskill 2018 is carrying out under the name of "Learning from the Iku, Wiwa and Kogui ancestral knowledge for Colombian schools". So far in the progress of the research could describe the teaching methodology of these communities in four interrelated categories: spiritual, community, environmental and economic. Under each category there are underlying principles based on the Law of Origin of these communities.

Institutional Educational Project PEI. The educational institution Eco-pedagogical School and Ancestral Knowledge will have an ecological and community orientation, as well as the ancestral knowledge of the Iku and Wiwa communities. The institution will take as a reference the pro-environmental and community practices of the Iku and Wiwa community, which differentiates it from other educational institutions and positions it as an example to follow in terms of education for sustainable development and education for peace.

The Ecopedagogical and Ancestral Wisdom School is an institution that wants to make its practical, pro-environmental and community education a model to be followed by other institutions at the national level. The educational institution aspires to transmit true pro-environmental and community practices based on the ancestral knowledge of the indigenous Iku and Wiwa to form students aware of the fundamental work they have as next generations to live harmoniously with their natural environment.

The transmission of knowledge will be done to students through classes in the classroom and outside of it, in which students experience an ecologically sustainable life day by implementing Iku and Wiwa ancestral knowledge practices. Likewise, the compulsory subjects present in the national curriculum will be taught. The school will have the principle of having trained teaching staff in different languages, including the native Colombian languages as stipulated in the constitution that states:

The national education system "will center on the subject that learns and will function in a flexible and dynamic, inclusive, efficient and efficient manner. [...] It will integrate an intercultural vision, in accordance with the geographic, cultural and linguistic diversity of the country, and respect to the rights of communities, peoples and nationalities " (Colombian Constitution,1991, Art. 343)

The Eco-pedagogical and Ancestral Knowledge School will have among its priorities the continuous improvement of the quality of education. The school does not discriminate the income of any student to the institution regardless of race, ethnicity, beliefs or customs. One of the main motivations of the institution will be to promote a democratic participation based on human rights and a peaceful coexistence that is under the component of promoting community coexistence in the institution.

Educational inclusion will be made through the integration of all interested members without distinction of gender, sexuality, race or ethnicity, encouraging citizen participation of

all members through coexistence workshops, meetings, shared classes in which parents and members of the community can be participants in the teaching process with a transversal vision.

History. The Eco-pedagogical and Ancestral Knowledge School has been forged from several encounters of several families from the Tabio community to whom the need for a more integral education centered on being, and its harmonious relationship with other beings and its natural environment, arises. The mamos and other indigenous members of the communities of the Sierra Nevada of Santa Marta, Mhuyskas and other ethnic groups of Colombia and the world, have been accompanied by this population to a more sustainable walk, in which education has been highlighted as being fundamental to achieve the purpose of awareness of the next generations.

The Eco-pedagogical and Ancestral Knowledge School has been forged from several encounters of several families from the Tabio community to whom the need for a more integral education centered on being and its harmonious relationship with other beings arises, and its natural environment. The mamos and other indigenous members of the communities of the Sierra Nevada of Santa Marta, Mhuyskas and other ethnic groups of Colombia and the world have been accompanied by this population to a more sustainable walk in which education has been highlighted as being fundamental to achieve the purpose of awareness of the next generations.

Context. According to the census published by the DANE in 2005, the total population of Tabio was 20,714 people. In 2005, 79.7% of the people resided in indigenous house-houses and only 17.4% lived in apartments. Likewise, it should be noted that only 7% had natural gas, 36.8% telephone, and 66.5% sewerage. 1927 dwellings were located in the urban area and 3268 in the rural areas. Based on the census, 4.4% of the population 5 years and older, and 2.9% of the population 15 years or older could not read or write. On the other hand, 25.9% of the

population between 3 to 24 years of age living in the urban area did not attend a formal school, compared to 36.5% living in the rural areas.

The culture. The culture of the ecological reserve of Tabio comes mainly from families who have appropriated the Mhuyska culture, and have been interested in adopting customs, pro-environmental habits, and community pedagogy of different Colombian ethnic groups.

The language. The language is mainly Spanish and they are being educated in the Chibcha and English languages.

Mission. In the Eco-pedagogical and Ancestral Wisdom School House, with a community eco-pedagogical curricular focus and ancestral knowledge, we educate because we believe it is essential to generate change towards pro-environmental behaviors and community coexistence skills in the next generations.

In this way we want to transform the destructive and individualistic way of life with the beings that surround us, and the land on which we depend. We teach values for coexistence and a sustainable way of life, based on the worldview of the Iku, Wiwa and other ethnic groups' knowledge in fundamental areas, including bilingual education, to survive the demands of today's world.

We will achieve the proposal through a curriculum, a syllabus and some class planning that integrates values stipulated in the Earth Charter such as compassion, spirituality, and stewardship. The home school inculcates taking care of the community of life with understanding, compassion and love, integrating practices of ancestral knowledge in-situ with daily ecological and conscious activities that organize and transform our territory.

We propose that the teachings formulated in the planning, become habits and finally a way of life, in which the dialogue of knowledge allows us to live harmoniously and peacefully with our environment, and in our society. We educate all children, youth and adults interested in learning this pedagogy.

Vision. Within the next five years, by 2023, the Eco-pedagogical and Ancestral Knowledge Homeschool will be a formal educational institution based on the law, contributing the students with a training in pro-environmental habits, with skills and values that facilitate communal life of students, which we hope will be reflected in the infrastructure and daily life inside and outside the institution. We aspire to become a bilingual institution that implements and impacts the national curriculum, and is a leader in the development of community pedagogy, eco-pedagogy and pedagogy of ancestral knowledge.

Methodology of implementation. The project has been planned into three phases:

Socialization and approach of the problem to the community:

- Expose the project to the community, showing the needs it intends to satisfy; likewise show opportunities and advantages that are proposed.
- Socialization of the background, state of the art, documentation and theoretical foundation.
- Project review by the community: Responses will be answered, taking into account community observations of the project

Design proposal

- Curricular planning: The curricular design will be carried out according to the needs and conditions of the community, taking into account the project's revision by the community.
- Syllabus: In accordance with curricular planning, the curricular guidelines will be documented.
- Contextualization of social aspects: The context in which the community develops and the different variables it can present (surroundings, social groups) will be reviewed.

- Pilot test: A test class session will be designed with the members of the community duly informed, in order to determine what activities, strategies and resources are appropriate for the correct development of the class.
- Validation of the pilot test: The pilot test will be validated by experts in the field. The observations of the expert peers and the observations of the community will be taken into account to make the last adjustments to the proposal

Analysis feasibility

Due to the nature of the project, an official project analysis matrix will not be used for its evaluation and analysis. However, we will use some aspects of the same suggested in the General Methodological Guide for the identification, preparation and evaluation of public investment projects of 2016 of the National Planning Department.

Matrix of integral analysis of the project. The following matrix was designed and used to analyze the project:

Table 4

Matrix of integrhl analysis

Dimension	Aspects to evaluate	Achieved	Not achieved	Not applied
Community	Project stakeholders were identified and strategies were linked to it.			
	The community was involved in the process of identifying the problem and formulating alternative solutions.			
	The project is relevant to the community and has the support that sustains it.			

Dimension	Aspects to evaluate	Achieved	Not achieved	Not applied
Ecological	The environmental analysis is included in the level of alternatives or for the validation of the proposed project.			
	The project does not generate negative impacts neither towards the demand for inputs, nor in the provision of goods and / or services, nor in the production of waste or collateral effects during the operation, and if it produces them, the corresponding mitigating measures are proposed.			
	The project does not generate negative impacts of any nature during the investment phase and if it produces them, the mitigating measures are proposed.			
Risks	The risk map has been considered. Risks are identified for the execution phase (and operation if applicable) and actions are proposed to eliminate, mitigate and / or administer them.			
	The risk flow was applied, identifying the relevant measures to protect the project			
	The proposed actions to eliminate, mitigate and / or manage the risks are incorporated into the costs.			
Institutional	The institutional framework of the project is defined, and the relationships that must be generated for a correct execution and operation of the project are considered.			
	The project is articulated with the contemplated regulations and complies with the regulatory parameters existing in the country.			
	The institutional modality is defined to carry out the execution phase and is adequate.			

Dimension	Aspects to evaluate	Achieved	Not achieved	Not applied
	The institutional modality is defined to carry out the operation phase and is adequate and sustainable.			
Financial	The project is "cost-efficient": the product generated has an efficient unit cost compared to other alternatives for solving the problem, or it is lower than a standard agreed upon as acceptable.			
	Investment costs are adequately defined, quantified and valued.			
	A viable scheme for the financing of investment resources is proposed. (additional desirable: the financing source is defined and there are resources for the project execution phase)			
	Resources have been calculated for the operation phase and a scheme is proposed to guarantee their provision. If the operating resources depend on tariffs or contributions from the beneficiaries, the project includes a viable strategy for its application.			

Note: Source : Self constructed

11. Final remarks

The research provided schools with relevant information to teach environmental education and also an education which emphasizes cooperation rather than competition. In the theoretical realm, the fact that the ICFSNSM have an environmental education theory that is profoundly interconnected with the practice, is significant information but also reveals challenges when applying AK in conventional education.

Another important finding was that the community is built from the spiritual theory, with the guidance of a spiritual leader, and is constructed with the support and organization of

the families, which are also responsible for organizing the territory. Such information is relevant when we think of solving the environmental and social problems of today, because it presents the connection of the territory with education and with the people. It reminds us that the educational process not only occurs in the school but also in all the spaces where the student socialize, and education is a constant process. Therefore, the families which conform the community are a fundamental part of environmental and community education. The process through which the ICFSNSM consolidate their communities is a methodological example, which humans who live in capitalist systems could apply to restructure their schools in order for them to be environmentally sustainable and more humane.

Despite the possible difficulties to implement AK from the ICFSNSM to a Colombian school, such as territorial limitations (absence of clean rivers, air, and soil, limited space, foreign crops, and climate change), cultural discrimination, and economic constrains, AK can provide schools with certain pedagogical information to practice in schools to achieve environmental and community education.

It would be best to do a pilot test of the proposed school first. Then the process should evaluate to see what possible changes it needs in order to function properly. If the school has a parallel community the same should be done with the community. Constant research and evaluations should take place to identify mistakes at an early stage.

In Colombia there are several ecovillages (intentional communities) that are already trying to apply IAK from Colombian indigenous communities. One example is Aldeafeliz. At the moment they are working on the organization of their school. Also, the University of Antioquia has a bachelor's degree called mother earth's pedagogy. It is a good experience for people from capitalist societies to start learning other ways of living.

To question the information that we are transmitting to the next generations is crucial, because depending on what we teach them we are shaping the future for us and for the children. To think more in the wellbeing of the whole and not in individual benefits is also one of the recommendations gathered from this research.

Utopias can succeed, but first they have to be organized and planned in the spiritual realm. Being aware of the challenges is important to succeed; acculturation of indigenous communities has also disrupted the lifestyle, causing them to acquire farming techniques, social relations and other behaviors that are destructive to the natural environment and to their cultures. The more people that decide to change the way the life the bigger the change will be for mother earth. All humans depend on mother earth to survive, independently of their spirituality. All humans and therefore all spiritualities perceived nature as sacred. It is this disconnection and the fear of changing which keep people enslaved to distrustful habits. `

In Colombia, we are still rich, not only because we have a great biodiversity, fauna, flora but also due to the importance of the knowledge that our ancestors are saving in their cultures and territories We have a bank information that can teach us to live in harmony with others and with the earth again.

Further research should be done around the topic of ancestral knowledge of hunter gatherer indigenous groups in Colombia. Hunter gatherers in Colombia are disappearing, like the Nukak Makú. Therefore, more research should be done about the ways to protect indigenous territories from destruction in Colombia.

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2. Appendix

Appendix A. Entrevista con indígena mamo Kogui

Appendix B. Entrevista con indígena Arhuaco: Luis Torres

Appendix C. Notas de campo de una familia extensa Iku residente en el pueblo de Nabusímake, SNSM

Appendix D. Notas de campo de una familia extensa Wiwa residente en Ubaté, Cundinamarca

Appendix E. Notas de campo de una familia extensa IKU residente en Sasaima, Cundinamarca

Appendix F. Entrevista a Namahuqui (Bogotano) adoptado por la etnia Muisca

Appendix G. Interview's code list

Appendix H. Field notes codes

Appendix I. Interviews quotations list

Appendix J. Interview's code network map

Appendix K. Field notes code network map

