



I-WISE Next Generation Strand

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NEXT GENERATION YOUTH STRAND REPORT

By Isabel Hawkins, Kyle Swimmer, Tim Hecox, and Shelly Valdez



Left: Baba María, Isabel, and Ani
Right: Verlie Ann and Angelo

I. Background and Conference Activities for Next Generation Youth Strand

Connection to place has been identified by numerous researchers including traditional knowledge holders as an essential component in Indigenous education (Schultz 2002; Sutherland and Swayze 2012; von Thater-Imai 2014). There is a need to strengthen cultural identity in youth and to provide elders opportunities to share their traditional knowledge that emerges from ancestral lands in the context of the science, technology, and mathematics. Indigenous youth sit at the confluence of where the past joins with present and future, and in collaboration with tribal elders, there is an opportunity to develop experiences for youth that celebrate Indigenous culture while exposing them to new knowledge. Building capacity in youth for their future role as essential culture and tradition bearers includes preparing them to walk in two worlds by ensuring that they feel strong in their Indigenous cultures and confident in engaging with other cultures, including the culture of STEM (NCAI 2013).

Next Generation Youth Strand

Culturally based educational experiences founded on relationship allow traditional Indigenous knowledge to emerge out of the realm of abstraction, thus providing specific and authentic contextualization for contemporary Native communities, particularly youth (Begay and Maryboy 1998). The I-WISE Next Generation Youth (NGY) strand experience was designed to enhance the holistic capacities of Indigenous youth by fostering discussions, participatory activities, and cultural exchange that built on their cultural heritage and allowed them to envision how to incorporate their worldview into informal educational experiences. The NGY Strand served as one of the cornerstones of the I-WISE Conference, was forward-looking and recognized the key role that youth, in particular native youth, can play in making Indigenous knowledge visible and explicit in STEM fields and careers. The youth participated actively and brought their experience and cultural backgrounds to bear in the discussions. The highlight of the strand was a moderated group conversation where the youth addressed questions from other strands and issues that the youth identified during the conference. During this conversation, the rest of the I-WISE conference participants listened and had a chance to interact with the youth.

Youth Participants

The NGY strand convened 16 youth from 17 – 30 years of age, representing 14 different indigenous cultures from the continental US, Hawai`i, and Mexico. Most of the youth were college and university students at the undergraduate level. There was one graduate student and one high-school student. The rest were post-graduate.

Pre-conference Engagement

Webinar: The youth and strand team participated in a pre-conference webinar to orient the youth to the goals of the conference and provide a forum for discussions. The webinar was hosted by the strand facilitators Kyle Swimmer and Dr. Isabel Hawkins, strand synthesizer Tim Hecox of OMSI who has experience with native youth councils, and group discussion “Fishpond¹” moderator Dr. Verlie Ann Malina-Wright who is a world renowned science educator with a great deal of experience with youth and culturally-based educational strategies. The Webinar focused on “science of place” to set the context for the conversation. “Science of place” has been practiced by Indigenous peoples throughout the world for countless generations, and within the context of the NGY strand, can be defined as long-standing knowledge of the environment in a particular locale that allows a community to lead healthy lives for thousands of years. During the webinar, we discussed how science is rooted in the cultural identity of a community and thrives when humans live in concert with nature and follow the cosmic order. “Science of place” is passed on to future generations through all forms of human cultural expression. As part of the invitation to the webinar, the youth were asked to think of a tradition or activity that is culturally based and that

also has a scientific, technological, engineering, or mathematical component or foundation. The youth input served as examples of “science of place.”

During the webinar, we asked the youth to address the following:

- Examples of challenges or positive experiences in the education system both formal (school) and informal (museums, science centers, etc.)
- Cultural perspectives: Where is their grounding coming from (or not)?
- How did their cultural upbringing influence their understanding of science (environmental, informal, cultural contexts)?
- How are the education systems supporting, or not supporting, their worldviews?

NGY Strand Conference Activities

- To insure youth voice was a focal point and to build camaraderie among youth, the strand facilitators clarified for all conference participants that the youth strand was the only strand that was not “open” to all audiences, in contrast with the other strands. The youth had a chance to introduce themselves to other conference participants early on in the conference to foster informal interactions.
- Participatory activities featuring the science embedded in Indigenous Knowledge and traditions were shared during the strand to engage youth in discussing the conference goals and key questions through immersive experiences.
- For the NGY Strand, each break session offered the youth participants opportunities to engage in indigenous games that were facilitated by one of the elders, Richard Horn.
- To foster small group discussion, the NGY strand began by addressing the following questions:
 - How can traditional knowledge inform and nourish western education P-21?
 - How can youth become the drivers of knowledge held by indigenous communities? (science is culture – science lives within tradition)
- To emphasize the importance of the next generation youth, one of the evening events included traditional social dances from the *Kitzit: Laguna Youth Dance Group*, a local Pueblo youth dance group.
- The youth took the lead in discussions about opportunities and directions for future work, working in small groups. They identified key issues for future work that align with the Diné strategic plan model used by conference PIs.
- The highlight of the NGY strand was a “Fishpond” moderated discussion where all youth were invited to sit in a circle in middle of the room facing each other, with Dr. Verlie Ann Malina-Wright among them. The remaining conference participants sat around them, observing and listening to the conversation taking place within the fishpond. Verlie Ann Malina-Wright and Kyle Swimmer moderated the conversation, where the youth address the discussion questions and outcomes in an open/informal but focused conversation. After a certain time, the conversation was opened to the other participants who had a chance to ask questions and interact with the youth.

I-WISE Next Generation Youth Strand



Questions

1. How can traditional knowledge inform and nourish western education?
2. How can you become the caretaker of knowledge held by your indigenous community?

Discussion Catalysts

- Cultural perspectives – where are your sources of cultural grounding?
- Science is culture – science lives within tradition
- Your experiences in the K-21 systems of education – where are the gaps?
- Challenges and opportunities for the preservation of indigenous cultural identity in a fast changing world

II. Results

After welcome and introductions, the strand discussions began by addressing the guiding questions:

“How can indigenous knowledge nourish western science?”

The youth felt that the question was one-sided, that it put indigenous knowledge at the service of science. Instead, the question should be more balanced, such as:

“How can indigenous knowledge and western science complement each other?”

The youth felt that the question as it was presented, though not phrased optimally, presented opportunities for discussion and catalyzed deeper thinking. Conflict can engender discussion and more thoughtfulness.

Youth felt that during the conference there was much talk about sustainability, environmental and otherwise, without explicit recognition that indigenous communities have been practicing sustainability as a way of healthy living for thousands of years.

The NGY panel put in practice a facilitation processes that allowed the participants to offer their opinions and knowledge while being exposed to examples of “science of place” as well as whole-person experiences. For example, when addressing the second key question:

“How can you be the caretakers of indigenous knowledge in your communities?”

The youth participated in a demonstration of traditional corn cooking practices by a Maya grandmother from the Yucatan, Mexico. The demonstration discussed the connection of corn to ceremonial traditions in the Yucatan and also discussed the chemistry of traditional cooking methods that use alkali/calcium elements in the cooking of staple corn-based foods to release niacin and prevent the deadly disease pellagra. Anchoring the answers in a corn

cooking demonstration facilitated the youth in finding other specific examples to discuss and envision their roles as caretakers of traditional knowledge in their communities.

Other examples included the exploration of Inka engineering through 3D puzzles, llama caravan traditions in the Andes, traditional games of the Plains Indians of North America, and chemistry through art and music in Tarahumara Indian communities in Mexico.

During the Fishpond presentation and discussion, each youth shared their reflections about their I-WISE experience: something positive, something hurtful or concerning, and something emergent or with potentiality towards the future. This plenary presentation was supported by a preparation activity in which Dr. Verlie Ann Malina-Wright guided the students in discussions about indigenous sovereignty and visions for the future as indigenous leaders in their communities.

Dr. Malina-Wright set the stage by expounding on true sovereignty, as opposed to the illusion of sovereignty, which would allow indigenous communities to utilize their lands, resources, and people in the way that the community wants them used, exercising their full rights to be sovereign and make decisions for the well-being of their people.

III. Detailed Results

Youth Responses to the Question: “How can traditional knowledge inform and nourish western education?”

Acknowledgement of a painful history...

- The truth needs to be told in our schools about what happened to indigenous people.
- By providing outside perspectives, since science is one sided. Colonialism and silencing of indigenous knowledge is the foundation of western science.
- Teachers want to make our culture disappear.
- Traditional ways and culture should not nourish Western education; it should be the other way around!
- Placing traditional knowledge and native ways of learning into the field of anthropology and framing it as a way of the past isn't appropriate. People still practice these ways of life and it is not only a thing of the past.
- Indigenous Knowledge is thought of as “informal” education in western mainstream society.

Teaching and learning methodologies that are based on relationship...

- Perhaps indigenous ways of learning, such as active listening can be applied.
- Indigenous knowledge can help to develop a relationship between science and the object of study.
- Indigenous knowledge could nourish western education by relating it to humans and life. I feel like the western education system separates life and education, making humans singular in this multitude of life.
- The style of teaching – showing, experiencing, and discussion vs. some stranger just lecturing hoping someone is listening.

Take into account the knowledge of our elders...

- Observing and advising on sustainability - elders know very much from experience.
- Our stories hold knowledge of the earth's history and carry data that might help to understand where we are today. Knowledge about our lands could help in various fields from earth sciences, to nutrition, health, and medicine.
- Placed-based generational knowledge - Our stories, language, and traditions reflect knowledge systems that allow us to survive and adapt over centuries. It would take a long time to relearn this knowledge so it is important that we honor and remember it. It is not reflected in our education system... not yet!
- Passing traditional knowledge on, informing others, making those who may be ignorant or biased aware because they are never going to get those perspectives through academics.
- Teach our children, talk with elders, and learn from our people.

- In nurturing the people and going to traditional communities.
- Traditional knowledge of regional, place based crops and their foraging and production can localize food systems to strengthen food security.
- Looking at how our ancestors maintained a balanced life for health.
- Implementation of values. Such as importance of family and community. Elimination of 'crabs in a bucket.' Everyone helping one another to succeed – no matter what your background is.
- Our focus of looking to our elders for teachings vs. putting elders in nursing homes and forgetting about them.

Youth Responses to the Question: “What is one piece of advice you would write for yourself to share your cultural knowledge?”

Native languages...

- Learn my language – because that will enable me to share our knowledge with my children and community
- Continue to learn Zapotec language and teach people of my community.
- Be sure to implement traditional and cultural knowledge into my career as a dental hygienist. Also learn my language.
- To learn the Umatilla language; there are only 3-4 people who still know how to speak – and they may not even be all that fluent.
- Give the time and patience to listen, but also have the courage to share and speak.
- Learn our language and practice it - use it!
- Pray in your language every day when you wake up. This is the Lakota way of life and the red road.

Be proud of who you are...

- Learn language – listen – patience – walk with my chest puffed up like an eagle.
- Never be afraid to be who you are, native. And remember your ancestors.
- I am the child of my ancestors. I have the right to my heritage, and to learn my culture.
- Adapt, but remember where you come from.
- To always listen with an open heart and I promise to always think with a seventh generation mindset.

Reconnect with the land...

- Keep planting seeds
- To start listening to everyone around me. To understand that each one has his own way. To respect and learn from that.
- Walk my land.
- Go back to my clay.
- Walk with my people.
- Be like corn - resilient.

Youth Responses to the Question: “How can you become the caretaker of knowledge held by your Indigenous community?”

Interacting and listening to elders, learning from community and the land were recurrent themes...

- Learning from our elders and teaching to our youth - learning from the land, the spirits, the elders and teaching the youth how to do that.
- Metaphor was used around a single seed of corn turning into many seeds and having the power to care for many people - a single human being can also empower themselves to educate and empower many others of their community.

- A youth shared personal reflections around her grandparents not passing on their native language and how working at an ancestral site has changed her perspective and she now feels empowered to learn and share traditions.
- Another youth participant shared how blessed they feel that so many of their ancestors sacrificed their lives so that native people today can still carry their knowledge today – and how lucky we all are that we can carry-on that knowledge.
- Others shared how they used negative experiences with formal education to empower them to move forward both with their cultural traditions and professional career.
- Becoming a caretaker of indigenous knowledge means learning from our elders and spirits and teaching our youth. It means growing, learning, and teaching. It’s about not letting the knowledge be stagnant.
- I can show my family and friends all the things I learn in my job and in this kind of activity, so we can ground more and become proud of our knowledge.
- Learn the technology our ancestors used and teach others; participate in our ceremonies; help the elders and listen to them.
- Learn as much as I can and share that knowledge with everyone – especially the children in my life.
- Sharing my culture with people who have the same interest in our culture and have knowledge of their culture.
- Teach the younger generations how to plant seeds to create food security for their community.
- I would say by having compassion for the people, caring, loving teaching, being patient are ways in which we learn and spread good knowledge.
- Spending time with elders learning traditions and teaching the youth and bring the elders and youth together keeping alive our ways and respect.
- Just do it, grow your hair.
- Learn from the elders, keep the traditions alive, you are not only responsible for yourself, but for yourself moving forward, so make sure you are learned in the old ways so that you can pass that on.
- Organize activities that bring youth and elders together in our community.
- Exercising sovereignty through using traditional practices such as harvesting, games, technology and sciences
- In order to take care of our indigenous and traditional knowledge, we must take the time to visit our elders and listen to them; we must listen with our whole heart, so that it will be installed within us.
- You immerse yourself as much as you can.
- Share and pass on information for younger generations to follow.
- Sharing with my children what I learn. Seeking and listening to knowledge of my brothers and sisters
- Make tortillas with my grandma.

Youth Responses to the Question: “What are pros and cons on the way we have been taught school science and traditional knowledge?”

School Science	
Pros	Cons
<ul style="list-style-type: none"> - Experiment with things, and experiment with things - Prepares for future – learning experiments - Learning basic scientific methods - Can be recreated - When we understand a process through science, we feel empowered - Knowledge in general is great - especially as we move forward as a society - Access to new and innovative ideas from around the world 	<ul style="list-style-type: none"> - We lose the holistic look on things - Memorization learning without meaning - Not fully understanding the teachings – unrelated context - It lacks emotion and spirituality - Science does not acknowledge the spirit inherent in all things whether they are living or non-living – Stones have spirits too - Was boring, lacked motivation to care about learning - Not everyone learns the same way

<ul style="list-style-type: none"> - Make sense of everyday things like skate boarding - Experimentation; provides information - I am good at it - Organized in one spot – easy to access (ex. Data base, libraries) 	<ul style="list-style-type: none"> - Abuse natural elements for personal gain - Being taught from a book – not project based - Goes against beliefs - Don't understand what the point is - Different language that I didn't understand
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Traditional Knowledge	
Pros	Cons
<ul style="list-style-type: none"> - Better connected with nature - When we understand a process through science, we feel empowered - Teaches me about who I am - Ancestral knowledge; hands-on learning; inquiry/observation - A way of life-learning in a comfortable environment; stories - Gives significant meaning – stories, culture; allows me to spend time with family and others - It is fun; it is about my people - You learn with your whole body and remember because of the experience of understanding cultural knowledge was taught as a way of life. Provided me framework to go back to from my adolescent period of feeling lost. Applies to everyday outlook on life - Connects everything - past, present, past, future - Is who I am – what I have been taught - Understanding sustainable science - Language easier to understand - Preservation; important to survive 	<ul style="list-style-type: none"> - Not accredited - Not enough – need more - Narrow perceptions; not documented; lost practices - Can only see with the eye - Varies from family to family (sometimes) - Not accepted always/everywhere - Not written - You can't explain something (it's not that it's not allowed – it's just difficult to explain in words) - Not taught in K-12 schools - Sometimes you don't realize what you are learning, so you may not get conscious about your knowledge (and value it) - Based on belief – not hard fact - Seen as illegitimate by science community - Knowledge keepers may not share with all

Youth Responses to the Question: “What would western institutions be like if they embraced your indigenous world views?”

- Teachers would understand and respect local Native cultures – they may not participate or be a part it, but they would understand, respect and support. Ex. was given on having Acoma feast day off – it's great that local native students were granted the day off to attend the feast.
- We would not be stuck in the classroom all day – we would be also out in the field studying practices and out looking at the sky at night.
- If western institutions embraced our own indigenous world views, then the institutions would be truly diverse in academia, rather than for head count for meetings quota for financing.
- Community oriented values instead of individualistic capitalistic values.
- There would be bigger focus on the environment thinking many generations ahead.
- We could hear more minorities in higher education and a more sustainable thought process.
- There would be support for educating everyone in the Yucatan using our Mayan tongue.
- They would not exist – instead value systems and cultural protocol would exist.
- They wouldn't be western institutions, they would be free resources for people to utilize – education, food, social programs, and housing if not free – at least affordable and up to date; Our health care would be provided by our own people; More space for tradition; Our housing wouldn't be “projects.”

- Be community based self-government rather than capitalistic and money based.
- Based on indigenous perspectives - building on respect, responsibility, relationships, and reasoning. We would see a better world for our future - Wisdom.
- Culture, traditions, teachings, blessing-way/protection way teaching for our youth.
- People in cities would appreciate native rural communities and would stop discriminating us. Native people would take ownership of our lands, our cultural traditions, and our ancestral sites would not become diversion parks.
- Western science promotes science as a whole answer while giving credit only to humans, with no respect or belief in the Creator – indigenous cultures, to succeed, have to compromise.
- It would be the perfect space to embrace elders and children to share knowledge.

Youth Responses to the Question: “What does indigenous sovereignty mean to you?”

- Indigenous sovereignty means that our tribal nations have the ability to function from a cultural value / knowledge based paradigm.
- I think the concept in Spanish would be “soberanía” and that means that your pueblo can make its own rules, make its own decisions and share with the rest of the world as much as they want to. I think my people does not have this. We are the charity of the government.
- Indigenous sovereignty means the ability to exercise our indigenous rights as indigenous people, without the need for permission of the colonizers, oppressors. It is economic, political, spiritual, etc.
- Making final decisions for the benefit of majority of your people.
- The right to self-sovereign our lands, laws, and people for the best of our people.
- What I want for self-sustaining – economically, educational, environmentally, GREEN.
- To be self-sufficient; to break away from federal funding and take control of our children’s education.
- Freedom to rule (not really the right word) over yourself and your community as you need to suit your people. This freedom is also recognized by other nations.
- The ability to create economic enterprise that doesn’t have to follow a capitalistic model.
- I feel sovereignty is a term made up by the US Government to make tribes feel they have the power to govern their own people and land. In order for this to be truly sovereign, they need to create their own economy and become independent from federal laws, state compacts, and outside jurisdiction. We need to take back our lands and protect our people from further colonization and heal from the abuse our people have survived. Work with other tribes and nations to promote our traditional values.

Youth Responses to the Question: “What is your hope for your culture and your community?”

- I hope that my community will start to practice our cultural value – *wolakota* – way of life. The values of our culture will sustain us and bring us together at a *tiospaye* level. Then we can continue forward a strong nation.
- Black Hills youth learn language; gain food sovereignty; unify traditional people.
- That we can revive our ways of life that is sustainable and embrace our heritage as native people without blood quantum but as a culture and community.
- I can learn because I need to know both worlds to save our people.
- That our great grandchildren are healthy, know who they are as people of the land and remember us as good ancestors.
- That indigenous people are still here.
- My hope for my community is to heal and in order for our community to heal is to engage and bring our culture alive.
- My hope is for my people to learn the language and the stories of our elders. To learn our traditional ways. Use our culture to heal. Teach our people that colonization was forced on us but we recover and we can beat the US Government at their own game by educating our people and taking jobs in their institutions. Utilize those platforms to benefit our people and educate non-indigenous people.
- For every one of all ages to speak their own native language.

- Try to recover all of our ancestral knowledge; Culture – don't lose it.
- My hope for my culture and community is that we acknowledge cyclical types of learning and in the process create a stronger foundation to teach our own culture.

Conversation and Activities with Verlie Ann Malina Wright

Dr. Malina Wright gave a background on her and her family and a beautiful analogy of how a Hawaiian traditional fishpond can represent what's happening with tribal nations and the US Government. Youth participants were asked to answer "I can because..." in reference to the prepared statements below. Youth wrote down responses on sticky pads and then moved into small groups to discuss and compile their responses. The intention of the exercise was for youth to come up with their definitions of sovereignty.

Prepared statements for youth to respond to...

As youth representatives of our tribal nations, we share together leadership responsibilities to our ancestors, all of our relationships with our places and ways of life. AS FUTURE GRANDPARENTS, CHIEFS, COUNCIL, STATE LEGISLATURE, US CONGRESS, UNITED NATIONS, business entrepreneurs – CEOs, Philanthropists and...

We declare our sovereignty as

_____, because

_____, needs to

_____ for our children not yet born.

We as kinship of _____ and nations, declare our sovereignty through our behaviors, beliefs, knowledge and skills, land, sky, water practices and spirituality because....

We declare to protect forever our native heritages, traditions, stories, culture, language, arts, and ways of knowing, doing, being, and becoming for children not yet born because...

Responses from Youth:

I can because...

- I can learn my language and pass it on because we still have it
- I can grow healthy nutritious food
- We can support ourselves because we have the resources and tools to do it
- I can be a change maker because I CARE about mother earth and our future (children) and we can make a difference
- I can fight because my ancestors died
- I can learn about atrocities; I can learn about technologies and their effect on the land; I can learn their language because it's available
- I can teach what I've learned and I can listen
- I can plant and harvest because I have my heart and mind open
- I can be a good relative because I am a young Lakota man
- I can because I can help my people and sustain our culture because I am prepared; I can show and lead the next generation because I am doing it
- I can take control of my health and eat locally produced food because my community can grow and produce its own food staples



Resident Peruvian Llama



The NGY Group with Elders, Scientists, and Facilitators



Julia, Ani, and Cee



Youth at Taos Pueblo