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Sharing Our Pathways

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Alaska Federation of Natives ◆ University of Alaska ◆ National Science Foundation ◆ Rural School and Community Trust

Navigating Across the Tundra with Fred George

by Claudette Engblom-Bradley

In Alaska villages along the Kuskokwim River, Yup'ik hunters follow a rigorous schedule for subsistence hunting and trapping of animals, gathering of herbs and berries and ice fishing. Between October freeze-up and April break-up, they travel by snowmachine long distances across the tundra to hunt, trap and gather berries. Snow covers the tundra with a white blanket that is continually stirred up by the strong winds. During long winter nights they navigate across the tundra using stars, frozen grass, tree growth and snow waves to guide their way (Bradley, 2002).

Trained by his father since he was a young boy, Fred George has become a highly skilled navigator of the tundra with 60 years of experience. Currently an Elder of 68 years, he lived with his wife Mary in Akiachak until she passed away in November of 2000. Fred and Mary have eight children and many grandchildren. Nearly everyday Fred leaves to attend to his subsistence responsibilities and returns home with lots of fish and sometimes caribou or ptarmigan. His subsistence activities feed not just his family, but his extended family and sometimes friends.

The following is an interpretation of how Fred George manages to navigate 90 miles across the tundra at night. It is based on the many discussions shared by Fred George and other Elders, Yup'ik teachers and UAF faculty together with the author's experiences on the tundra and investigations of star behavior.

On November 10 at 10 P.M. Fred George begins his first trip of the season across the tundra. At that moment Tunturyuk (Big Dipper) hovers 30 degrees above the northern horizon, like a giant spoon sitting on a table. Scientists have identified the seven stars in the Big Dipper (from right to left) as alpha, beta, gamma, delta, epsilon, zeta and eta star. The Gamma Star sits directly over due north on the horizon in Akiachak on November 10 at 10 P.M. This position of the dipper is a reference position for Fred George.

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Before leaving Akiachak Fred carefully checks his snowmachine for gas and working parts. He loads his machine with hunting equipment, dresses warmly and starts his snowmachine shortly before 10 P.M. He heads out of the village using snowmachine trails heading north. About five miles away from the village at 10 P.M. Fred stops his snowmachine to check the time on his watch and the position of Tunturyuk (Big Dipper).

Fred George checks the position of the third star, Gamma, in the Tunturyuk with a sequence of hand measurements. He uses his right "hand span" with the tip of his thumb at Gamma Star and his pinky pointing down to the horizon. Fred keeps the tip of the pinky in stable position while closing his fingers and rotating his hand downward using "four-finger measurement." He keeps the index finger in stable position and rotates his hand downward using "three-finger measurement" which puts the ring finger at the horizon. The tip of his ring finger locates true north on the horizon.

Fred chooses one of two routes, which lead to his fish camps. If the weather has little or no snow falling or strong winds blowing, he will choose to travel to the northwest fish camp by heading in the direction under the Dipper handle on November 10 at 10 P.M. This direction turns out to be just less than 30 degrees west of north.

If the weather is moderate with some snowfall, clouds and wind (but not completely overcast), Fred will choose his second route and travel due north for two hours and turn northeast under the dipper handle, towards his other fish camp on the Yukon River. By 12 midnight the Dipper has moved to the right and the Dipper handle is over true north on the horizon. His watch tells the direction he needs to turn, which is 30 degrees west of due north.

Fred George demonstrating his navigation by the stars.

If the weather is very bad, Fred waits until the storm is over. The Elders do not travel in stormy weather. If a storm comes when they are out on the tundra, they build a snow cave to wait out the storm. This is one reason why weather prediction skills are so important to develop starting at the young age of eight years old. Young boys are told to observe the weather at sunrise and sunset every day. A skilled Elder can predict the weather for the next 12 months.

The tundra has a countless number of lakes between the Kuskokwim and the Yukon Rivers. Every lake has been given a Yup'ik name. The lake names are family names given to the lake for the family's historic use of the lake for fishing and camping. The northeast winds make waves in every lake. The waves freeze in position. The October snow falls over the frozen waves and becomes hard snow; making snow waves rolling in the southwest direction over the lakes. Fred George travels on his snowmachine at 15–20 miles per hour and uses the snow waves to find his direction. He feels the waves kinesthetically with the movement of his snowmachine traveling over the waves. If the snowmachine changes its direction Fred can feel a change in the rhythmic motion. He has learned to maintain the rhythmic motion to retain his course. Fred relies heavily on the snow waves when the sky becomes overcast or the weather is somewhat stormy. However, if the weather is

too stormy, he stops, and waits for the storm to pass.

When he exits a lake and travels on tundra, Fred must use the frozen grass and wind-blown trees as compasses. The prevailing northeast winds cause the long blades of grass to lean over in the southwest direction; snow freezes the grass leaning in the southwest direction. The few trees are generally in isolated spots. The heavy winds cause the trees to also lean in the southwest direction and to grow most of their branches and leaves on the southwest side of the tree, leaving the northeast side of the tree barren, which creates a natural compass.

Fred George . . . uses the snow waves to find his direction. He feels the waves kinesthetically with the movement of his snowmachine traveling over the waves. If the snowmachine changes its direction Fred can feel a change in the rhythmic motion.

Fred also recognizes landmarks. Landmarks are rivulets, streams and small structures or tiny log houses. During my first trip out on the tundra, Fred identified a partially fallen 10' by 10' log cabin used in the old days by Yup'ik hunters. Such landmarks appear occasionally along his pathway to fish camp. Mary George, Fred's wife, said that the location of landmarks are essential to navigating across the tundra. They reinforce the navigators understanding of his position on his journey.

By now its midnight and Tunturyuk has moved to the left, i.e., counterclockwise 30 degrees. The end of the Dipper handle is directly over true north. The Dipper appears to be turning upward towards east. After riding the tundra for two hours, Fred stops his snowmachine to check his watch and the Tunturyuk. Fred places his watch in front of his chest with the 12 in the north direction and the 6 in the south direction. Fred checks his snowmachine which is heading 5 minutes (11 on his watch) to the left of north (12 on his watch), i.e. 30 degrees west of north. With the 12 heading toward the dipper handle hovering over true north his snowmachine must head in the direction of 11 on his watch, or 5 minutes to the left 12, which is 30 degrees west of north.

He checks the landmarks recognizing the frozen streams and distant mountains. The strongest winds come from the northeast direction. On the first day of snow the wind blows the grass in one direction. Generally the grass is blown to the southwest. The weight of the snow holds the grass in the direction of the wind and the cold temperatures freeze the grass. Frozen grass becomes a natural compass on the tundra. Fred can use the grass to determine his direction.

Another two hours has passed and it's time for Fred to check his watch and the Big Dipper. The Dipper handle has moved upward and east. It appears parallel to a north direction. Fred will hold his hands up so that one is in the north direction and the other is in the direction of the dipper handle. By 4:00 A.M. Fred has reached his fish camp. He needs to build a fire, eat, set up his tent and go to sleep.

On clear or even partially cloudy nights Fred navigates with the Tunturyuk in the late evening and Venus, the morning star, in the morning. In February and March Fred navigates with Venus, the evening star in the evening and in the morning. Fred generally remains home in Akiachak during the coldest month, January.

On his return home in the morning Venus is east and on his left when he faces south. Facing south he places his watch in front of his chest, so that 9 marks the east direction, 12 marks the south and 3 marks the west. Fred knows that Akiachak would be 5 minutes (30 degrees) east of south, i.e., in the direction of 11 on his watch.

Heading 5 minutes to east of south, Fred feels the motion of his snowmachine over the snow waves. He maintains the motion to keep in the direction of Akiachak. The snow waves are perpendicular to the southwest direction. Since his snowmachine is traveling southeast. The left side of the front end rises up first, tilting the snowmachine down on the right side. As the snowmachine goes over the top, the tilt reverses. This motion simulates a boat rocking in the ocean.

Elders say young people are not spending time and listening to Elders as they did in the past to learn their cultural ways and stories. Yet they drive snowmachines out on the tundra and many get lost, run out of gas and cannot find their way home. Fred's knowledge of the stars and the tundra environment would give them a chance to survive.

Preserving Fred's knowledge of navigating across the tundra is important to the self-esteem and cultural identity of Yup'ik people. A study of Fred's ways of navigating across the tundra uncovers the wisdom, courage and ingenuity of his Yup'ik ancestors.

For the rest of our society, Fred's knowledge will enhance any person's library of way-finding or orienteering, plus his knowledge of the stars helps us understand how they move in relation to time. We can use the stars to find our way and tell what time it is.

Bradley, C. E., (2002). "Traveling with Fred George: The Changing Ways of Yup'ik Star Navigation in Akiachak, Western Alaska," I. Krupnik & D. Jolly (Eds.), In *The Earth is Faster Present: Indigenous Observations of Arctic Environmental Change*, Fairbanks, AK: Arctic Research Consortium of the United States in cooperation with the Arctic Studies Center, Smithsonian Institution.

A New Educational System in Russia

by Ruslan Hairullin, Professor of the Department of Social Pedagogy, Moscow State Social University

There are 30 indigenous groups living in Russia, totaling approximately 210,000 people. They are the Aleuts, Dolgans, Itelmens, Kets, Koryaks, Mansi, Nanais, Negidals, Nenets, Nivkhs, Nganasans, Oroks, Orochs, Lapps, Selkups, Tofalars, Udeges, Ulchis, Khanty, Chukchi, Chuvans, Evens, Evenkis, Eskimos, Enets and Yukagirs. Some years ago the Shors, Veps, Kumandins and Teleuts were also added to this list. All these peoples are small in number. The smallest groups are the Enets (350) and Oroks (450). The most numerous are the Nenets (29,894) and Evenkis (27,531). These indigenous nationalities live not only in the Far North, but also in the Far East and Siberia. As a group they are generally referred to as the "Peoples of the Russian North." Most of them lead a nomadic life and engage in traditional forms of subsistence economy.

In the twentieth century the indigenous peoples of the Russian North moved from a patriarchal society to modern forms of social, political and cultural life. Along with significant positive results, this process had some negative influence on the Native languages, cultures and traditions that served the northern peoples well for untold ages and ensured their survival in the extremely difficult conditions of the North. The adaptive and regulatory functions of Native languages and traditional cultures assumed more and more decorative features. The language situation in the North in general cannot be characterized as a simple one, but negative trends are dominant.

The modern period in the fate of Northern languages and traditional cultures, beginning from the mid-eighties, can be characterized as a period of revitalization of Native languages and traditional cultures. At the same time there is a real danger that today, when Russia is in transition, indigenous peoples of the North will face additional cultural and linguistic degeneration. To improve the situation, in 1998 the concept of reforming of educational systems for indigenous peoples of the Russian North was developed. I was one of the developers of this concept.

Goals and Tasks of the Concept

Goals and tasks of the Concept are determined by the strategic aim of creating and supporting by means of governmental regulation conditions of self-sustenance and self-development of indigenous peoples of the North. The goals of the Concept are:

- protection of cultural space of indigenous peoples of the North from destruction by other cultural systems influence (including the influence of mass media),
- assistance for national education systems and local cultural complex development on the basis of revival of traditional spiritual values and elaboration of modern culture of indigenous peoples of the North,
- support of cultural exchange between indigenous peoples of the North and other peoples of Russia and the world.

Main Positions of the Concept

1. Particular responsibility of the state to protect traditional cultures.
2. Responsibility of the state for giving northern children a full-value education appropriate to various career goals.

The component approach to organization of the structure of education provides a good opportunity to introduce a wide variety of ethnic culture, both traditional as well as professional, into the whole content of education within the limits of local ethnic component. Introduction of traditional culture into the content of education is a matter of great significance. It is directly connected with traditional northern types of economic activities, such as reindeer breeding, hunting and fishing. Exactly for this reason the people of the North require plant and animal resources, distant camps, migration routes in the tundra and taiga, mountains, rivers and lakes—not only as their place of residence and survival, but also as cultural space. For northern peoples the ecology of their homeland comprises part of their material culture, genetic memory and ethnic traditions. The religious beliefs of these peoples, their rich folklore and traditional songs and dances,

are directly connected with the surrounding world and with the group's past and present.

Therefore, the curriculum in ethnic schools of the North is being developed in correlation with federal and ethnic-regional components on the "dialog of cultures" principle. The ethnic part must introduce children to the world of their own ethnic culture. Correlating the federal and ethnic-regional components is a serious pedagogical problem. According to the recently approved curriculum for Native schools, the subjects of the ethnic-regional component in elementary school prescribed 15% of school hours, in secondary, 5%. In regional curricula the ethnic component can take up to 25% of school hours. An integral approach to creating the content of education within the limits of the ethnic-regional component permits the development of a number of strategies that can meet varied educational needs and offer to students diverse educational trajectories. All this in turn presupposes a set of interconnected measures capable of reforming educational systems for northerners in the spirit of proposed changes.

Guidelines for Federal Actions

On Improvement of the Education System for Indigenous Peoples of the Russian North

The problem of improving the educational system is considered in specific social-cultural contexts, which is resolutely different from usual management decisions in the sphere of education. In this case the question concerns people's cultural attitudes who, because of their small-numbers, feel a particular tension due to a lack of their own reserves for self-preservation.

Legal development of the term "relic culture" comes from recognition of the exclusive social-cultural value of relic cultures and, as an effect, the need for state patronage on the conservation of these cultures and their carriers. In this direction the improvement of a normative legal base on the considered matter is reasonable. Specified federal law could clarify approaches to the conservation of cultures of indigenous peoples of the North through determination of the status of relic cultures, conditions of its granting, and so on. Federal law must stipulate the particularities of educational systems for indigenous peoples of the North with due regard for the priority task of conserving their traditional culture, lifestyle and spiritual revival. Questions of education in light of this task become paramount.

Development of the Content of Education

It is impossible to consider tasks and problems of northern schools apart from the tasks and problems of the educational system in Russia as a whole and ethnic Russian schools in particular. The most specific amongst different cultural regions is a unique civilization of peoples living in the circumpolar area. Its originality is threatened by new challenges to maintain the balance between ecological and cultural conditions worked out by these peoples during centuries of adaptation to extreme conditions of the North.

This requires a specific curriculum that conveys the given culture. Modern textbooks for ethnic minority schools are to be based not only on innovative didactic technologies, but also on the goal of raising the efficiency of educating. They are to be built on the principle of "dialogue of cultures," aimed at mutual coexistence of several cultures combining different goals and tasks of education. For the northern schools this means finding ways of adapting a child to new, changing conditions of life (by means of the obligatory minimum of content of education) under the simultaneous conservation of the values of traditional culture and lifestyle.

A. Development of content of Russian language course.

A particular part in this process belongs to the teaching of the Russian language alongside the Native language, which in the law on languages of the peoples of the Russian Federation (1991), received the status of national language.

B. Development of contents of Native languages course.

Native languages instruction forms part of the ethnic-regional component of the base curriculum. Native language is necessary not only as a mean of communication and cognition of surrounding reality, but also as a means of preserving and transmitting ethnic cultural traditions to subsequent generations. A diminution in traditional spheres of economic activity reduces Native language usage sharply, and sometimes leads to its virtual disappearance. Extension of the social functions of Native languages, including increased interest in their study, new orientations in the educational process and consequently several other purposes of educating, require developing new programs which will adequately reflect specific particularities of Native languages, the spheres of their use, and their ethno-cultural significance.

C. Development of contents of local lore course.

Introducing local lore materials into the curriculum has found a reflection in methodical manuals, special programs and school textbooks. However studying local lore in northern schools involves many unsolved problems. The natural-climatic conditions, history and cultural space of

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the northern regions are so diverse that studying school subjects without regard for the specifics of the thinking and mentality of northern students is not effective.

References to circumpolar cultures of peoples of the North, as well as information about the contribution of northern peoples to world civilization are generally absent from school textbooks. There are no special textbooks where this topic is specifically included. Local lore materials can be introduced to the northern curriculum in the following way:

- bright, figurative materials for school children with narration about the whole territory of inhabitancy of peoples of the North, Siberia and Far East and about general regularities and originality of their histories, cultures and lifestyle;
- an analysis of particularities of circumpolar culture of northern peoples and their contribution to world civilization;
- an analysis of Native mathematical, astronomical, physical, chemical, and medical knowledge of indigenous peoples as a whole, and peculiarities of this knowledge in different regions;
- local lore materials should be introduced in school textbooks (for the whole North and for separate regions) for all subjects, including Russian language, literature, mathematics, physics, chemistry, biology, geography, subjects of aesthetic and labor cycles.

Priority should be given to training personnel from among indigenous peoples of the North on different vocational training levels, including the following:

a. ecology, environmental protection and forestry;
b. fish-breeding, cattle-raising, breading animals for furs;
c. hunting and fishing;
d. civil and industrial construction;
e. complex meat conversion, products sea handicraft industry;
f. service of air, auto and river transportation;
g. radio and TV broadcasting, communication;
h. all types of medical service;
i. education, culture, traditional branches of managing;
j. consumer services, trade, commercial activity;
k. communal services and
l. law, economy, administrative control. Vocational and professional training must be organized to prepare specialists in the above-mentioned areas while using the programs for doubled-related or second-addition professions. While developing the unceasing education system, there must be provided teaching of two languages—Native and Russian.

Ensuring the Educational Needs of Youth

An organization for educating children and teenagers from indigenous peoples of the North is needed to revise principles and organization of the educational process. A more flexible form of organization of the educational process is needed, including trips for teachers to participate in directive seminars, training for assistant teachers (e.g., senior schoolboys along the lines of the Lancaster system of mutual education), using distant education through radio and TV, increased pedagogical monitoring and short-term gatherings. A system of such actions can be provided on the modern stage of development in the Russian regions.

We need improvements and new developments in such forms of education as professional-technical education, short-term courses, education by correspondence and distant education. It is necessary to provide refresher courses and improvement of the qualifications of pedagogical staff from northern regions in the light of new tasks for realization of the federal program. Special attention should be paid to providing youth from indigenous peoples of the North with higher education.

Expected Results

The most important social-cultural consequence of realization of the Concept outlined above will be creation of conditions for preserving relic cultures as living elements in the mosaic of modern life in the world cultural community. The conservation of indigenous peoples and development of a protective action system for them has great political importance for ensuring the unity of the peoples of Russia.

Within the Russian Federation, the project's realization will lead to more realistic state support for a certain part of the population connected with the traditional lifestyle. This will reduce unproductive expenses for educational training of children of indigenous peoples of the North because very often the knowledge a student receives at school is of no use for their further life. The project will enable a better correlation of subjects studied with the future occupations of students, leading to a preservation of aboriginal lifestyle.

Actions on implementing the project are directed toward realizing, in respect to indigenous peoples of the North, the concept of stable development that expects harmonious expansion of production, improvement of the social sphere and environmental protection. Organizational and financial questions related to reforming education for indigenous peoples of the North are to be developed in accordance with the given Concept and its approval within the framework of the program and realization of the project.

Iñupiaq Region: Kingikmiut Dance Festival

by Katie Bourdon

The Kingikmiut (Wales) Dance Festival is a renewed celebration that is growing and gaining strength every year it convenes. The fourth annual festival began this year on Friday, May 2 and ran through May 4—three full nights of celebration and dancing. Fifty years ago there was a strict restriction on dancing and drumming imposed by the missionaries that the Wales people adhered to but the drums are sounding again and with vitality.

Pete Sereadlook recalls when the dancing used to take place in the *kagzhi*. The dome-shaped Native store now sits in its place and dancing now takes place in the Kingikmiut school. Pete Sereadlook and Faye Ongtowasruk, both Wales' Elders, have been devoted to rejuvenating traditional Eskimo dancing and drumming. To their credit, the youth and young people of Wales have become a large and strong group of dancers eager to learn more.

The Wales Kingikmiut Dancers and Drummers. Left to right: Cynthia Crisci, Alicia Crisci, Angela Crisci.

What was remarkable to me during the festival was the young age of the Brevig Mission dancers and drummers. Their drummers were young men who sang out with conviction and confidence while the dancers gladly danced their songs.

The festival was honored by the presence and performances of the Tikiguaq (Point Hope) Dancers and Drummers. They were the evident connection to our ancestors, as their drums have never stopped (due to outside forces). Not only did they capture the crowd's attention with powerful performances, but they also shared old songs and dances that were from Wales and Shishmaref with the young Wales and Shishmaref dance groups. Teaching was done right there on the spot. Dancers were welcomed to join in and learn.

Mary Huntington with the Shishmaref Dancers and Drummers. She is performing the "Cheerleader" song.

A small, young but vibrant dance group from Shishmaref participated as well and did so through dedicated efforts by Mary (Stansenko) Huntington. Traditional songs were performed as well as modern songs created by Mary. Crowd favorites were the "Cheerleader" song and "My Savior."

The Diomede Dancers and Drummers made it to Wales by the second night of dancing with a warm welcome. Bench dances were performed that made us all feel like we were back in the *kaghzi*.

King Island Drummers sing the "Wolf Dance" to say goodbye. Michael Ahkinga (Diomede Dancers on the left) helps perform with Bryan Muktoyuk (King Island Dancers on the right) while Francis Muktoyuk scoots through them and Agatha Fords waits her turn.

The Nome Native Youth Leadership members were present with the King Island Drummers and performed crowd favorites, as well as closed the festival with the Wolf Dance. Gabe Muktoyuk, King Island Elders, shared that they enjoyed their time in Wales and will say goodbye until they meet again. The dance has the men sway to the beat back and forth with their arms moving in motion. Each dancer must run through this human arm path without getting caught. The crowd enjoyed the playfulness of the dancing. There was an excitement and energy during the dance and the crowd responded with laughter and applause.

It was a joy to be part of this cultural event and I would like to encourage as many folks and dance groups to attend the next Kingikmiut Dance Festival. You will come away inspired, revived and renewed!

Yup'ik Region: We Have Enough Why, But Not Enough How

by John Angaiak

Having been to many meetings that deal with culture and language issues, I am now convinced that we have enough *why*, but not enough *how* to solve some of the basic issues of our children's education. Those that have found the answers are too few and they are the quiet ones. I would like to know what they do with their children so they are successful in school.

I am talking about Native families that have high achieving children in all subject areas. What role does culture and language play for them? The few that volunteer to answer say it's all part of a full education and not only the school's responsibility. They don't make excuses for their kids. They say parents should encourage children to learn whatever the school offers to them—Yup'ik/Cup'ik, mathematics, geometry, geography, Spanish, English, culture, etc. Also, feed them well and make sure they get enough sleep so they will be able to learn more easily.

Whether teachers are Native or non-Native, they want to do their job and share everything they can with their students. Parents are a big part of whether children are successful and we have to support what they and teachers are trying to do.

I want my children to be able to speak and live in the world wherever they want to be. I want my children to live a better life than mine. As a parent, that is my job. I don't want my kids to get stuck in one little part of the world for life. It is my responsibility to make sure they will never forget where they came from and who they are. Because of who they are, they will attend the best colleges and universities the world has to offer, if they choose to. If we have our Yup'ik University, they can attend that, too. As a parent, I have done everything I can to prepare my children to go out into the world and make their own way. They are off to colleges and universities and part of me is going with them. If I have done a good job, they will be successful in whatever life they choose for themselves.

We spend a great deal of time looking at statistics to see where the best and brightest kids come from. We rarely seek answers from students and their parents as to why kids are going to college from our own villages. We have a lot to learn from parents whose kids are going to college. Perhaps we should be looking within our own communities instead of debating who has the best idea about Native education.

There are large families where the parents have very little schooling themselves, but their children have received a college degree. How did so many of their kids complete college? How did they do it?

Their answers are in the way they raised their children: "Don't let them go hungry. Make sure they get rest. Don't let them stay up late. They have to learn to be successful seal hunters. They also have to be educated to be able to get jobs and take care of their families."

These parents never quit talking to their kids even after they are grown—encouraging them that learning is a lifelong process. The parents have something to tell, even if they are never asked. Where else can their children get the best advice during their formal education? Yet, we never bother to ask them why their kids are successful in school.

There is similarity here to the way the Alaska Rural Systemic Initiative (AKRSI) relates to schools. It will tell you how if you ask. It has much to tell about how to prepare successful children. It has been around for a while, but it is only beginning to spread in school districts. It is not loud, yet speaks with fire once you understand it and is pleasant to hear when it speaks. Its grandparents are the Elders.

I compare AKRSI to the silent parents. It comes from the heart down deep inside our roots and reminds us that we need to kick-start ourselves. AKRSI should reach out to parents as well and not just through institutional means such as schools and colleges. After all, parents start their children's education at home first. AKRSI is now making inroads within school districts but the schools should not be targeted alone to make AKRSI work. It is an exciting and important undertaking to include parents in the AKRSI movement.

It is good to dream. I'd like to sit around with a group of families in the village, talking about traditions. When my turn comes around, it would be a nice way to excite the gathering with the subject of the Alaska Rural Systemic Initiative. We have enough *why*—now it's time for the *how*.

Yup'ik Region: Sound Mapping

by Craig Luchsinger, Ph.D., Teacher, Aniak High School

There is no sound of silence for us. Hike up a hill, stroll across the tundra, find the quietest place you know and there will still be a healthy spectrum of sound—even if it is only the thump-thump of your heartbeat. The American composer John Cage locked himself in an acoustically "dead" room at Yale University to prove this very point. It was noisy in there. The intent of this article is to provide teachers with a simple lesson in acoustic perception that can be applied in any number of interdisciplinary contexts.

The lesson plan requires brief preparation. Explain to students that the object of the lesson is to sharpen their acoustic perception. Perhaps after a long pause—intentional wait time—ask students about what they hear, perhaps the fluorescent lights, the chatter in the hallway, etc. Then take them on a walk. In my own case, we walked from Aniak High School to a path that was several hundred yards away from the main road. It was the sort of place that was on the edge of the envelope between our community and the wilderness that regiments our context(s).

Explain to students that their acoustic center will be an "X" on a blank sheet of paper. Explain that their task is to spend 15 minutes or so "mapping" the orientation, the source, and even the strength of every sound they hear. It is important that they understand they must be utterly silent and stand at least 20 feet away from each peer. This enriches the collection of data and the implicit perspective of the sound maps.

In my applications of this lesson, I was fortunate to receive some fine pieces of writing (please see sidebar "Moment of Zen"). I encouraged students to focus on keen perception—clearly an element of strong writing. As well, I suggested that onomatopoeia,—that is direct quoting of sounds—would enhance their writing. I never knew that chickadees chirping, snowmachines roaring and even the sound of one young man falling out of a tree, could elicit such exquisite refractions.

"Holistic learning involves a multi-level approach in which the learner is encouraged to understand many aspects of an idea at the same time as well as interrelationships between ideas." (Rhodes, 1988). I collected this quote from *Alaska Native Education: A Statewide Study of Alaska Native Values and Opinions Regarding Education in Alaska* (2001). I firmly believe in holistic learning, where all students can take a given experience and shape it into a product of learning that is specifically their own. As an extension of this notion, I find that teaching students to write only happens when they discover an extension of their self-identity, that is, a way to attach a verb to the pronoun "I".

Finally, I wish to thank Michael Lyons from the Roger Tory Peterson Institute, Jamestown, NY for the inspiration for this lesson.

Moment of Zen

(Literacy, 01/30/03)

by Charlene E. Chamberlain
Student, Aniak High School

I began my quest for the experience of Zen by standing on a snowy trail previously broken by Eddy Hoeldt. I first heard various noises around me. Zac, ahead of me, seemed to be climbing a tree. Branches were breaking "crack crack." Then his voice spurred out into many words, some undeterminable to my ears, but a definite sound came, "I think I broke my leg!"

The noises around me began to cease. Vehicles on the road ahead of me were zooming by "vrrrooouuummmeee." There were three vehicles I've identified, three passing to left. A horn honked "beep" in the housing area. It got even quieter. I heard birds "chirp, chirp, chirp" to my left and my own breath leaving the place of my lungs forming fog in front of my face.

Although to my right boys were making conversation in the forms of whispers, I couldn't identify the words that came out of their mouth, except the occasional raven sound attempts "quaw, quaw, quaw."

In front of me there was a deafening sound that I'm sure hurt the poor little hairs in my cochlea. It was a plane taking off on the runway, "brrrrruuuuuuuaaaaaaaammmmm!"

Whispers continued to my right. Richie, Eddy and Chris making more whispers and snapping limbs off of trees.

Laughing came from ahead which I identified as Erica "ha-ha-ha-ha." Then there was silence once again.

That was the end of my experience. I merely stood there. There was far too much commotion around me to experience anything close to Zen.

Athabascan Cultural Camp Gets a Facelift

by Bernadette Chato

Visitors to the Old Minto Cultural Heritage Camp, located at Old Minto on the Tanana River, are being greeted this year by new cabins, an enclosed dining hall and a Navajo hogan-style meeting hall. In addition, the camp smokehouse has been moved and rebuilt further back from the riverbank. The new buildings and renovation are the work of AmeriCorps volunteers, educators from Wyoming's Wind River Indian Reservation, along with staff and volunteers of the Cultural Heritage and Education Institute (CHEI) in Fairbanks. The Murdoch Foundation contributed the funds for the building materials.

This summer is the sixteenth year that Robert Charlie, CHEI executive director, is hosting cultural camps for clients ranging from college students to disabled youth to at-risk populations. When Mr. Charlie began his program in 1988, no permanent structures for the CHEI camps existed and camp participants slept in tents. Making his vision of a cultural camp a reality was a multi-year undertaking. Mr. Charlie incorporated CHEI in 1984 as a non-profit organization to help preserve Athabascan culture and promote Native traditional knowledge.

Campers enjoying the new facilities at Old Minto.

While some Old Minto participants today prefer to sleep in tents, they have the option of calling a log-style cabin temporary home while they spend days learning traditional Athabascan ways from Minto Elders.

Old Minto holds special meaning for the people of Minto, an Athabascan village 135 miles northwest of Fairbanks. Most Minto residents are Tanana Athabascans, speaking a dialect of Athabascan of Lower Tanana villages. Old Minto was the birthplace of many of today's Minto Elders. Because of floods, Old Minto was abandoned in 1971 and the Minto of today was established 20 miles north as the new village site. The Elders still call Old Minto home. It is where their ancestors are buried. It is where they learned how to survive in Interior Alaska's extreme conditions. It is where they lived a subsistence lifestyle, hunting and gathering food in the Minto Flats. It is where they found the materials they used to make beautiful Athabascan works of art that were functional and objects to be admired.

Robert Charlie is a Minto Elder himself. He was born at his family's muskrat camp in the Minto Flats in the late spring of 1927. He grew up at Old Minto and enthusiastically remembers village life. His fond memories are fodder for his ideas today of how to expand his cultural camp. For instance, his inspiration and design for outdoor ovens enabled Fairbanks welder Jenny Bell-Jones to build the massive ovens. Mr. Charlie came up with the idea for the ovens to help with the preparation of food for the potlatches that are hosted by camp participants. The ovens were put to the test this summer and they were a success, roasting bountiful amounts of meat and fish.

The potlatches are the highlight for the camps. Last year at the potlatch for the camp for University of Alaska Fairbanks education graduate students, attendance exceeded 150. Camp participants learn how to prepare traditional foods such as salmon, moose, beaver, duck, berries, wild rhubarb and fry bread. Then they learn how to serve the food traditionally. All aspects of how to host a potlatch are part of the curriculum.

In order for his summer camps to thrive, Mr. Charlie spends the rest of the year looking for funding. Grants from foundations and businesses keep the Old Minto Cultural Heritage Camp alive and growing. Five years ago, SeaArk Boats of Arkansas donated a 24-foot boat to CHEI. The boat is essential to camp operations as Old Minto is only accessible by boat or plane. Funding for various camps and special projects has come from the generosity of the Alaska Rural Systemic Initiative, Alaska Humanities Forum, Rasmuson Foundation, Paul G. Allen Foundation, AMB Foundation,

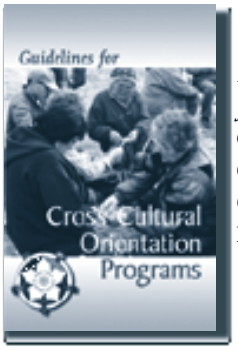
Ray Barnhardt and Robert Charlie take a break in front of the new meeting hall at Old Minto.

Murdoch Foundation and the Alaska Conservation Foundation.

As Mr. Charlie continues the search for funding, he is never short of ideas. He is planning an inter-generational camp, where Elders will instruct Athabascan youth and help develop the skills of what Mr. Charlie calls "Elders-in-training"—people in their 40s and 50s. Another camp in the planning is a cultural-immersion camp for youth fighting substance abuse.

Mr. Charlie and the Cultural Heritage and Education Institute will gladly design custom camps for groups, organization and schools. He also welcomes individuals. Cost varies, depending on the focus and number of participants. Costs include boat transportation from Nenana to Old Minto, as well as all camp meals and lodging (cabin or tent site).

For more information, call CHEI at (907) 451-0923 or visit the CHEI website at http://www.ankn.uaf.edu/chei or write to chei@mosquitonet.com or PO Box 73030, Fairbanks, Alaska 99707.



Now available from ANKN: Guidelines for Cross-Cultural Orientation Programs

Interior Cultural Orientation Seminar

by Linda Green, AINE Lead Teacher

The first Interior Cultural Orientation Seminar on "Community Empowerment" was held in Fairbanks at the David Salmon Tribal Hall on June 16 and 17, 2003. Twenty-five people from the Interior region were invited to participate. The focus of the seminar was on what local residents, teachers, leaders and Elders of a village could offer on a tentative plan to involve new school personnel in their community's events and activities throughout the school year. Participants in the seminar discussed ideas on empowering communities to be more involved in the local schools' curriculum and in the education of their children.

Discussion included the high percentage of teacher turnover in communities and how that affects the education of students; how educators are trying to deal with the benchmark exams; the exit exam and the No Child Left Behind Act; and effective programs in the state such as the immersion schools, indigenous curriculum examples and the Native Educator Association's involvement in education.

The keynote address was given by Dr. Bernice Tetpon, an Iñupiaq, who is the director of the Teacher Leadership Development Program for AKRSI through University of Alaska Southeast. Dr. Tetpon said "We, the Native educators, Elders and local residents are capable of determining the education for our future Native generations." She spoke about newspaper articles showing the low test scores of Alaska Native children in small communities and talked about how the labeling of the failures impacts our children statewide. We as educators need to help our children and grandchildren connect with education by making sure they know our history, culture and tradition. These aspects should be a part of the educational process.

Esther Ilutsik who is an instructor at the University of Alaska at the Bristol Bay campus in Dillingham, reported on her work in developing indigenous curriculum and training facilitators in the Yupik region to culturally orient new school personnel. Esther thanked the Elders present for sharing and for giving us strength to continue our educational endeavors. She spoke about training facilitators in each village to work with new school staff and that each community had an individual way of communicating their values. She stated, "It wouldn't be feasible to bring all the facilitators to the hub center of the region to train them. Each teacher has to be assisted in their individual community." Esther asked the participants to look at the Athabascan Values poster and discuss how they would teach each value to a new person in

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their community. The participants broke into groups and were assigned five values to consider and come up with ideas to teach these values to new school personnel.

Virginia Ned, program assistant for the Alaska Rural Systemic Initiative, started with the comment, "Always remember that our Elders are our professors." We have always learned our values, customs and traditions and we always will. She spoke about "Education in a Rural Community," and asked the group to think about traditional education, the introduction of Western educational practices and education now. She asked the participants to think about the successes and failures of each. What would be the best approach to improving education in rural Alaska? What strategies could be used to improve education in your community? Who would implement these strategies? How would they be implemented? Who would be responsible?

Bob Maguire, director for Alaska's Indigenous Peoples Academy (Project AIPA), a program developed by the Association of Interior Native Educators, talked about the curriculum units that were created by teachers who spent a week in the culture camps under the tutelage of a group of Elders from the area the camp was held in. This was the ninth year of the culture camps. Ten curriculum units have been drafted and will be ready for use in schools by the beginning of the 2003 school year. Mr. Maguire noted that the units included the Content and Cultural Standards. These are valuable resources for new teachers. The Association of Interior Native Educators also has video tapes for sale of previous camps held in the Interior region. Previous camps were held in Minto, Stevens Village, Gaalee'ya Spirit Camp, Chalkyitsik, Arctic Village, Nulato, Huslia and Northway, Also, every year for the past nine years AINE has held a conference after the camp to showcase curriculum units created by teachers attending these camps, to thank Elders for sharing their knowledge and to thank community members for welcoming the camps.

The newest booklet *Guidelines for Cross-Cultural Orientation Programs* was introduced by Virginia Ned and Lenora Carpluk. They went over the "Guidelines for Culturally Responsive Communities, Tribes and Native Organizations."

Each presentation was followed by a question and answer session. This helped participants to focus on a tentative plan to culturally orient new school personnel when they return to their communities. Follow-up activities have started with a recent grant from the State Department of Education and Early Development Recruitment and Retention Program, community section. The seminar was a great success and another is planned for May, 2004.

For additional information please contact Linda E. Green at (907) 474-5814 or linda@mail.ankn.uaf.edu.

Alutiiq Region: Our Culture: Revisiting the Past, Preparing the Future

by Tianna K. Carlson, Senior, Meshik School, Port Heiden

On April 28, 2003 four different villages gathered together in the community of Perryville on the south side of the Alaskan Peninsula. High school students, grades six through twelve, from four of Lake and Pen School District's Alutiiq villages were flown to Perryville to learn about their culture. They spent a week learning from Elders, teachers and guest speakers. The students were to learn about various cultural activities and, by doing so, they took their first step to bringing back their culture.

There were about fifty-six students that came for the event, not including other village members. The students were divided into different groups and assigned to attend different workshops. There were four different workshops being taught: beading, basket weaving, fish spear carving and skin sewing. Different community members and Elders were teaching the classes, along with the help of others. Mark Kosbruk, Sr. from Port Heiden and raised in Perryville, taught the students how to make and carve fish spears. Evelyn Kosbruk and Ruth from Perryville taught the beading classes. Cecilia Yagie from Perryville taught the basket-weaving class, Gerda

Kosbruk from Port Heiden taught skin sewing to the students. Charles O'Domin Sr. taught survival skills, and brought his groups of students to help get the camp grounds ready. All of the students actively participated in the classes and learned a skill that they'll be able to pass on to their younger brothers and sisters.

On the third day, the students and other village members got ready to go camping. Everyone was notified beforehand and brought everything necessary to participate in the campout. They left the school in the morning and hiked about a mile to a spot called Three Star. Once there, they set up their tents and got the cooking area ready. There were about fifteen or more tents set up in the area and a perfect spot was found for the fire and cooking. There were eight different bear guards who took turns watching on different shifts, just in case a bear happened to come into the camping area. The bear guards were Charles O'Domin Sr., Mark Kosbruk Sr., Charles O'Domin Jr., Chris Kosbruk, Warren O'Domin, Patrick Kosbruk, Gerald Kosbruk and Sammy Stepanoff.

Our campsite was right on the beach below Three Star, so the ocean was right in front of us. Throughout the day and evening, beluga whales and sea lions passed by letting everyone watch them in amazement. After lunch was served the students were split into different groups once again and assigned different workshops. One of the workshops was with Sammy Stepanoff from Chignik Lake, who taught how to split fish. Fish were caught beforehand so that he could teach the different groups. Evelyn Kosbruk from Perryville held a workshop on how to braid seal guts and cut up seal. The seal was also caught beforehand. Martha Kosbruk from Perryville taught students about the different medicinal plants. The last workshop was with chaperones of each group. They took the students on a walk to a river to look at the hooligans (a type of fish) and the beautiful scenery. A bear guard accompanied each group. Once the workshops were completed, dinner was served. Storytelling was next and different people told stories.

One of the guest speakers who attended this event was Earl Polk. Not only did he tell stories at the camp, but also at the school. He was respected and very welcomed by the students. They enjoyed his way of speaking to them and always had a good time listening to his stories. Once storytelling was over, everyone relaxed and enjoyed the beautiful outdoors. Some people played around with balls, others walked the beach and there were also marshmallows being roasted by the fire.

Our campsite was right on the beach below Three Star, so the ocean was right in front of us. Throughout the day and evening, beluga whales and sea lions passed by letting everyone watch them in amazement.

Soon it was time for bed and everyone retired to their tents except for the bear guards. They worked in shifts, watching the camp all night for bears. In the morning, everyone woke to the sound of rain on their tents. During the night it had started to rain so everyone got up immediately and started to pack up their belongings. The school truck hauled different groups and soon everyone was brought back to the school. Once at the school, breakfast was served and the students got time to wash up and get the campfire smoke off of them. Throughout the rest of the afternoon, students finished projects that they had started the second day of arrival. The different villages got together and practiced their performances for later on that evening. There was a village potluck that everyone attended, bringing their favorite dish to share with others. Before the potluck took place though, there was a naming ceremony. Earl Polk had asked Elders and other village members earlier that week to help come up with an Alutiiq name for all the students there. Once all the names were chosen, there was a ceremony and everyone was given their own Alutiiq name.

Later that evening, everyone sat down to witness the performances of the different villages. Perryville and Chignik Lake students did traditional Native dances together while wearing beautiful handmade traditional costumes. Port Heiden also performed some Native dances that they learned from Wassie Balluta, one of the teachers in Port Heiden. Chignik Lagoon performed a skit for the audience that brought some comedy. After the performances were over, Frank Hill spoke to us about the importance of maintaining our culture. He told us that culture is more than arts and crafts. He said that our Alutiiq values are what will really make a difference to our people. Following Mr. Hill's talk there was an award ceremony for the different teachers and people who helped throughout the culture week. Different craft items were given away, along with homemade jam.

On May 2, we were flown back home. It was the end of the culture week and everyone said goodbye to their friends. All the students enjoyed their time spent at culture week in Perryville, and all agreed to having another one and wanted to participate in it. Not only was this a good time to see friends and family, but it was a time to spread cultural values and keep up traditions that have happened for many, many years. These are traditions that will stay alive throughout our culture for many more years to come.

Southeast Region: The White Bear Project

"Look to the Past, Act in the Present, Plan for the Future"

by Devin Jones

On January 28, Dzantik'i Heeni Middle School in Juneau hosted a *ku.eex*, or potlatch, as a culminating event after a semester-long study of one of the most divisive issues in Alaska today: Alaska Native subsistence rights.

Thanks to generous donations from the Douglas Island Indian Association and Tlingit and Haida Association, we served a variety of Southeast Alaska fare to over 250 people that day: 200 pounds of King Salmon, 100 pounds of halibut, 35 pounds of crab, 35 pounds of prawns and a wide array of potluck dishes prepared by parents and friends.

The food prepared by students and parent volunteers was delicious, but the real focus of the event was to celebrate and share our students' work with an audience of policymakers and stakeholders in the subsistence debate. Our guest list was formed with this purpose in mind. Clearly one of the major obstacles in the way of a solution to the subsistence issue is finding a way to bring together all the stakeholders to continue a dialogue towards a solution. To the extent that the White Bear Project helped bring people with different opinions on the subsistence issue together, we are very pleased.

Many elected officials and community leaders graciously accepted our invitation and were present that day. Juneau's Alaska Native community honored us with their attendance. Present were many Elders and political organization leaders: Ben Cornell, Bob Loescher, Rosa Miller, Beatrice Brown, Sasha and Stella Soboleff, Ronalda Cadiente, Nora Dauenhauer, Emma Marks, Florence Sheakley and Ed Thomas among others. U.S. Senator Nancy Murkowski and Lt. Governor Loren Leman represented the governor's office. Members of the current legislature in attendance were Beth Kerttula, Mary Kapsner, Donald Olsen, Robin Phillips, Nancy Barns, Kim Elton, Bill Williams and Bruce Weyhrauch. Juneau Mayor Sally Smith attended from the city and borough of Juneau and the Juneau School District was well represented by Mr. Gary Bader and Ms. Peggy Cowan. There were many Dzantik'i Heeni parents who made time in their busy schedules to join us as well. Our 63 seventh- and eighth-grade students assumed the roles of chefs, servers, greeters, project attendants and clean-up crews.

Guests were greeted by students at the school's entrance, given an embroidered bandana as a gift and escorted to their seats. Very shortly thereafter, student waiters presented an overflowing plate of food and attended to our guests' every need. In this situation and throughout the *ku.eek*, to the best of our collective knowledge we strived to follow traditional Tlingit protocol for an event of this nature.

After Mr. Morse conducted introductions of the many distinguished guests, the *ku.eek* ceremonies began. The Dzantik'i Heeni dancers, under the guidance of Greg Brown, started off with a performance of several songs and dances that captivated the audience, many of whom joined the exit dance. Lead singer and drummer, young Cassandra Jerue, mesmerized the crowd with her vibrant voice and the pride with which the group performed was clearly evident.

Following the singing and dancing, a blanket dedication ceremony was conducted. With the help of Ms. Jodie Buck, Dzantik'i Heeni Home Economics teacher, students constructed a large felt blanket, 20 by 30 feet in size, with a wolverine stencil design that was commissioned for this project. The blanket was presented by the students to the audience and then accepted on behalf of Dzantik'i Heeni Middle School by principal Les Morse. The Wolverine blanket will be permanently displayed in the school commons area so that many people will have a chance to appreciate this beautiful piece of artwork.

Next came the adoption ceremony. Dzantik'I Heeni cultural heritage educator, Greg Brown, adopted three Dzantik'I Heeni teachers—Jodie Buck, Steve Morley and Devin Jones—into the Teikweidi (Brown Bear) tribe. We were each given a Tlingit name, handed down over generations. To be adopted by the Tlingit—the people of the tides—was truly an honor for all of us.

When the ceremonies concluded, our guests were invited to view the students' work and ask questions of students attending their project displays. A very popular display was the work with a community survey. Students gathered information using a questionnaire to help answer our research questions: (1) To what extent do Juneau residents support a subsis-

tence preference for Alaska Native people during times of fish and game shortage? (2) To what extent are Juneau residents knowledgeable about subsistence issues?

Fourteen color charts visually reported the results of 650 Juneau residents' responses to our survey instrument. Students written interpretations of what the graphs said about our research questions were also on display. Letters to students from Alaska legislators answering questions and stating their positions on the subsistence debate formed another portion of the project. One letter in particular drew attention from several guests. It came from Governor Frank Murkowski. In a reply written to seventh-grade student Amy Reid, the governor answered her questions and then proceeded to outline his position on the subsistence issue, to the best of my knowledge, for the very first time as the newly elected governor of the state of Alaska. Just a few days before, the governor had barely mentioned the topic of subsistence in his State-of-the-State address. I had to smile when we were dismantling the project displays and Amy said to me, "Do I get to keep this letter?"

At the end of the afternoon several students gave away handmade gifts to our guests. Senator Murkowski was the recipient of a painted brown bear on deerskin, framed for wall display. Lt. Governor Leman received a four-foot long, painted, cedar canoe paddle. Others enjoyed receiving small gifts as well. Indeed, the theme of giving to others was a large part of this event.

From the beginning planning meetings over one year ago, we all acknowledged it would take a dedicated team of people to make this course of study and our culminating event successful. We clearly recognized our strength was the sum of student, parent, teacher, administrative and community support. I would especially like to acknowledge the guidance of my E-mentor, Ms. Nancy Ratner, from the subsistence division of the Alaska Department of Fish and Game. Ms. Ratner and I formed our partnership in the fall, and with the financial and logistical support of the Society for the Advancement of Chicanos and Native Americans in Math and Science (SACNAS), we combined the expertise of a scientist with specialized knowledge of subsistence information and a teacher to help relay this complicated information to middle school students in the classroom. We are all sincerely grateful to the dedicated staff at SACNAS for their continued support of students and teachers in the Juneau School District.

Last, but certainly not least, I would like to thank the Elders who came to our classrooms or joined us on field trips to speak about what subsistence means to them and also about the concept and importance of respect in Tlingit culture. Gunalcheesh: Walter Soboleff, Archie Cavanaugh, Anna Katzeek, Ben Coronell, Emma Marks, Ethel Lund, Florence Sheakley, Frank Miller, Greg Brown, Jim Marks, John Lyman, Judy Brown, Marie Olsen, Mike Turek, Rosa Miller, Sergius Sheakley and Wayne Nicols. Our studies were deeply enriched by their knowledge of and wisdom about subsistence and Tlingit culture.

I believe that partnerships and teamwork guided us to fairly, accurately and thoroughly conduct our study of subsistence issues. The success of the White Bear Project and Dzantik'i Heeni's first *ku.eex* was truly the result of a collective effort. *Gunalcheesh* to everyone involved.

Math in Tlingit Art

by Andy Hope

A group of ten people enrolled in a "Math in Tlingit Art" course, ED 693, in early August. Nine of the ten are certified classroom teachers from various school districts throughout Southeast Alaska. The course will run through December 1, with students interacting, submitting research papers and participating in discussions in an electronic classroom.

The course instructor is Dr. Claudette Engblom-Bradley, visiting UAA Professor. The Tlingit weaving instructors are Teri Rofkar and Marie Laws of Sitka and Janice Criswell of Juneau. Steve Henrikson of the Alaska State Museum staff in Juneau hosted a tour of the museum's Tlingit basket collection and presented a slide lecture on the history of Tlingit basket weaving to the class.

Nora and Richard Dauenhauer are serving as language and culture consultants.

Students will:

- Explore the mathematics of Tlingit basketry, Chilkat blankets and Raven's Tail weaving;
- Work with master basket weavers to learn weaving techniques and for first-hand experience with the patterns;

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- Use LOGO software (elementary level) or Geometer's Sketchpad software (secondary) to model and further explore the mathematics inherent in traditional basketry and weaving patterns;
- Design lessons incorporating the mathematics in Tlingit art forms.

This course is sponsored by the Alaska Rural Systemic Initiative/ Teacher Leadership Development Project, Southeast Alaska Tribal College, the Southeast Alaska Native Educators Association, University of Alaska Southeast and the Southeast Alaska Indian Cultural Center, with funding provided by the Sitka Borough School District, Juneau School District, the Chatham School District and the National Science Foundation. Technical support is being provided by the UAS Professional Education Center.

Students enrolled in the "Math in Tlingit Art" course stand in front of a display of Tlingit baskets.On the right is the course instructor Claudette Engblom Bradley.

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