

A culturally sustaining and valid Alaska Native Language (Yugtun) assessment for school children

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Assessment tool development which includes the learning of Alaska Native languages by school children in Alaska is limited. A situation shared with First Nations internationally. Even rarer is the development of such tools which include the wishes and aspirations of the children's communities. The *Yup'it Piciryaraitnek Qaneryaranek-llu Cuqyun* (aka, *Yup'ik Culture and Language Measurement*) is being developed by expert Yup'ik native language teachers for kindergarten to Grade 6 students in the Lower Kuskokwim School District, Alaska. The assessment is administered in the Yugtun language. After previous attempts at developing assessment tools had excluded key Yup'ik cultural and Yugtun language features, school district officials and a group of Yup'ik expert native language teachers – the Yup'ik Expert Group (YEG) – decided that they needed to develop their own Yugtun language assessment infused with Yup'ik culture. The district officials then sought the assistance of language assessment researchers at the University of Wisconsin-Madison to ensure that the assessment would be regarded as high quality, valued not only by Yup'ik community members, and also met U.S. and State governments' requirements for funding. Community-based, participatory and collaborative research principles and practices are being used to support co-designed development of a linguistically and culturally sustaining assessment.

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This paper provides a project overview and focusses on the Yup'ik Cultural Awareness subtest, a foundational component of the assessment. The assessment project is the first of its kind in Alaska and significant for including community aspirations in a recognized, high quality assessment tool, thereby supporting teachers' efforts and the achievements of school children learning their community language.

Key words: co-design, Indigenous language assessment, culture assessment, Alaska Native languages, sustaining Yup'ik culture.

Introduction—the educational context

This paper analyzes the significance of the development of a valid and sustainable assessment for Alaska Native² school children that has at its core the importance of sustaining Yup'ik culture and the Yugtun³ language. Alaska Native language assessments developed for school children are limited, a situation shared internationally with other Indigenous languages. Even rarer is the development of Indigenous language assessments by Indigenous educators specifically designed to incorporate their wishes and aspirations for their children, thereby sustaining their own language and culture. Allen (2015, p. 1) notes an increasing concern amongst parents, educators, and researchers that "... standard language assessments do not accurately reflect the language development of Indigenous children". Furthermore, Allen (2015) reports the need for collaborative development processes, together with culturally relevant assessment tools reflecting Indigenous children's diverse linguistic and cultural realities. An international study has shown the benefits to children learning their own Indigenous language and culture include strengthening their sense of identity, sense of belonging, and their self-esteem, as well as stronger cognitive development, and increased school achievement (Angelo et al, 2022).

An Alaska Native language assessment, the *Yup'it Piciryaraitnek Qaneryaranek-llu Cuqyun* (hereafter referred to as the *Yup'ik Culture and Language Measurement* (YPQC)) is being developed for kindergarten through Grade 6 students in the Lower

² In the United States, the terms American Indian, Alaska Native, Native Alaska, and Native American are used to distinguish among Indigenous people. In this paper, the terms used are American Indian and Alaska Native.

³ Yugtun, also sometimes referred to as Yup'ik, is the language of the Central Alaska Yup'ik people.

Kuskokwim School District, Central Alaska. Over a six-year period, a group of Alaska Native expert educators, the Yup'ik Expert Group (YEG), has been developing the assessment as a strategy for sustaining their Yup'ik culture and Yugtun language, as well as modelling a Yup'ik-led process in the collaborative development of a high-quality assessment which can also inform other Indigenous and non-Indigenous experts. A particular focus in this paper is how the project has been co-designed and co-developed through collaborative and mutually informing ways of working, involving Yup'ik expertise and language assessment expertise as co-operative partners.

This paper gives an overview of the Yup'ik Culture and Language Measurement development and then focuses on the Cultural Awareness subtest from a socio-cultural perspective. Additional subtests are Oral Language and Literacy. Notably, Yugtun is the language used to assess students' proficiency in all subtests, with Cultural Awareness being a crucial subtest from the Yup'ik perspective. YEG members believe that all Yup'ik students need to learn and understand their native culture and its relationship to their native language, particularly when the vitality and maintenance of Yugtun language and culture is threatened by pervasive infiltration of English language and associated elements of modern "mainstream" (and non-Yup'ik) American culture, knowledge, and values into students' lives. Their vision of integrating Yup'ik culture and Yugtun language into the one assessment tool expresses their view of Indigenous language learning, a view summed up by Yup'ik scholars Barnhardt and Kawagley (2005, p. 18): "Indigenous languages are an integral part of indigenous knowledge systems and thus warrant particular attention in our efforts to understand how to better integrate learning in school with the cultural context of the home/community in indigenous societies".

The school district within which the project is being conducted is the largest (by student population) off-road, rural, school district in Alaska with 27 schools, 22 of which are situated in remote Yup'ik villages⁴. There are approximately 4,000 Pre-kindergarten to Grade 12 students, of whom approximately 85% are Yup'ik Eskimo Alaska Natives. The school district spreads along the Kuskokwim River and Bering Sea coast of southwest Alaska, with travel being by boat, snowmobile, or small plane⁵. Its

⁴ https://www.lksd.org/work_for_us/a_glimpse_of_l_k_s_d_2022-23

⁵ https://www.lksd.org/work_for_us

landmass is about 57,000 square kilometers (22,000 square miles): an area half the size of New Zealand's North Island (113,729 square kilometers, 43,911square miles⁶). The school district's population is approximately 16,100⁷: much lower than the North Island's population of almost 4 million⁸.

The issues

In 2008 the district began to transition to a dual language program as attention turned toward preserving the Yugtun language and Yup'ik culture. District officials had found that the nature and use of the Yugtun language was shifting rapidly due to the all-pervasive influence of the English language, such as through the internet and dominant cultural artifacts, e.g., television shows. There was a need for both curriculum and assessment in the Yugtun language as well as the Yup'ik culture.

To address this issue, and to ensure parents' voices were prominent in the decision-making process, district officials sought views from local villages comprised of Yugtun speakers who were long-term residents. Nineteen of twenty-six local site school boards indicated that families wanted parity and equivalent proficiency in both Yugtun and English, in the firm view that this would be of most benefit for student life and schooling outcomes and for the community.

In 2010 the district created a Yugtun Curriculum-Based Measurement, the Foundational Reading Test, for students in kindergarten to Grade 3. The reading test was a translation of an English language assessment. This attempt to build a high-quality measurement of students' Yugtun language proficiency was not as successful as hoped.

It became clear to officials that assessments translated from an English test were not identifying key features of the Yugtun language--for example, the ways in which Yugtun language structures convey meaning, or the ways in which Yugtun words and sentences are organized. Furthermore, aspects of Yup'ik culture are reflected in the Yugtun language and these were not adequately featured in the Foundational Reading

⁶ <https://mapfight.xyz/map/north.island.nz/>

⁷ <https://censusreporter.org/profiles/97000US0200001-lower-kuskokwim-school-district-ak/>

⁸ <https://www.google.com/search?client=firefox-b-1-d&q=population+of+north+island+nz+2023>

Test. Subsequently, district officials wanted to engage teachers, children, and communities in a purposeful and respectful mission to keep their Yugtun language and Yup'ik culture alive.

Officials and Yup'ik community members knew they had the collective knowledge to identify the Yugtun language features that were critical to community life and articulate how students' proficiency in their native language would be expected to develop as students progressed with their schooling. Furthermore, district officials and Yup'ik community members wanted their Yup'ik Culture and Language Measurement to be viewed as important as any English measure. Yup'ik community members expressed their aspirations for developing their culture and Yugtun language assessment as one that stands on Yup'ik ground.

The proposed solution

District staff determined that a Yup'ik Culture and Language Measurement project was needed to complement their introduction of a newly established curriculum, the kindergarten to Grade 6 Yugtun Dual Language Instructional Program. Through this new program and the Yup'ik Culture and Language Measurement project, the district aims to reinforce positive efforts to preserve and expand the Yugtun language and thereby reverse what otherwise might be an inevitable slide towards an education in English-only language and associated mainstream culture. Many Indigenous groups in the USA and indeed worldwide have experienced the minoritisation of their own languages and cultures on their own lands in their children's education by a dominant national (often colonial in origin) language and culture, imposing state standards which are inflexible and unsympathetic to the local Indigenous societies. Yup'ik communities steadfastly defend the place of Yugtun language and Yup'ik culture in their children's schooling.

While district officials and Yup'ik educators knew they had the collective cultural and linguistic knowledge to develop their own Yup'ik Culture and Language Measurement, they also wanted to learn principles and processes for making a culturally sustaining and valid assessment. A culturally sustaining assessment is defined as one in which "students' heritage and community cultural practices are resources to honor, explore,

and *extend*.” (Evans, 2021). Subsequently, officials engaged non-Indigenous language assessment researchers to provide technical support for a Yup’ik Culture and Language Measurement project.

The following *project goals* evolved following extensive consultations across native leaders and educators, district leadership, and researchers:

1. Community-based participatory research⁹ principles and practices will be used to develop and successfully implement a culturally sustaining, valid, and reliable Yup’ik Culture and Language Measurement that can determine if students are increasingly proficient using Yup’ik culture and language for life and learning.
2. The Yup’ik Culture and Language Measurement system will provide critical data with which to examine relationships across Yup’ik culture and Yugtun proficiency, and academic English language proficiency as well as academic content achievement for kindergarten to Grade 6 students.
3. Lessons learned from the YEG’s experiences will benefit tribal and non-tribal educators wishing to expand their native language programs to reflect their own educational, linguistic, and cultural aspects and goals.

Considerations underpinning project goals and design

In 2016, the district was awarded a grant from the *Office of English Language Acquisition* in the U.S. Department of Education to develop the Yup’ik Culture and Language Measurement and mitigate the dominant influence of the English language and culture in students’ lives. District officials convened the YEG to oversee and develop the Yup’ik Culture and Language Measurement.

At the beginning of the project, the YEG specified five essential requirements for the Measurement. Namely, the project must

- stand on Yup’ik ground: honor tribal sovereignty, governance, and Yup’ik Worldview to ensure community ownership by the Yup’ik people.

⁹Community-based participatory research as defined by Israel, et al. (1998) is “[A] collaborative approach to research that equitably involves, for example, community members, organizational representatives and researchers in all aspects of the research process.”

- support the Lower Kuskokwim School District’s Yugtun language programs and be developed by the YEG.
- be recognized as a high-quality assessment valued by the Yup’ik people, educators, administrators, and decision-makers, and be accepted by language assessment experts, researchers, and decision-makers.
- be rooted in the district’s strong ethos of community collaboration.
- be sustainable by building the district’s capacity in the technical aspects of language test development.

To meet these requirements, the project was designed around four interrelated core themes that determined the nature and scope of the project (Figure 1). They are

- satisfying the district’s five essential requirements for the Yup’ik Culture and Language Measurement described above.
- enacting research principles developed by and for Native peoples.
- enacting an assessment development process that meets relevant Critical Elements specified in the U.S. Federal Government’s Peer Review of State Assessment Systems approach.
- using the Assessment Use Argument framework (Bachman & Palmer, 2010) to demonstrate the quality and how results from administering the Yup’ik Culture and Language Measurement will be used in making decisions.

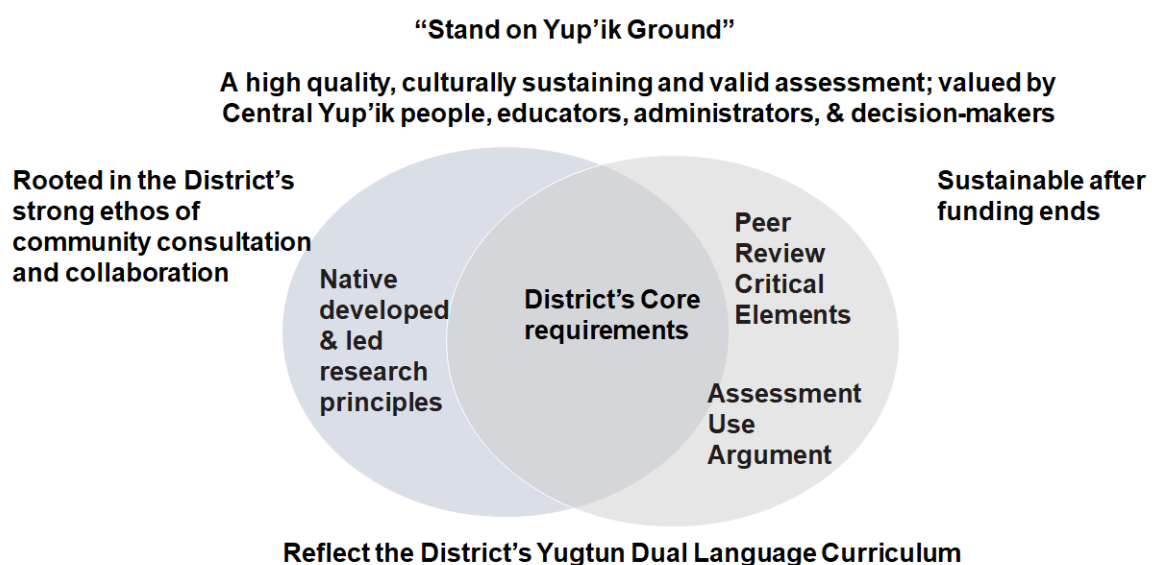


Figure 1. Project design and structure: Core themes

Community-based participatory research principles and practice

To accommodate these core themes, the Yup'ik Culture and Language Measurement project is designed to faithfully enact community-based participatory research principles and practices (Indigenous Wellness Research Institute, 2023; Israel et al., 1998; NCAI, 2012). Each core theme has its own set of principles, requirements, and audiences and, together, they reflect intercultural relationships underpinning the project and varying worldviews. The design entails re-envisioning non-Indigenous research paradigms to one that adheres to the fundamental rights of tribal self-determination and sovereignty.

By enacting community-based participatory research principles YEG members are obtaining more accurate and culturally sustaining information than through other research methodologies. Project participants speak more freely, especially with those they know and trust. YEG members are experiencing the impact of language loss directly. They grew up in villages learning their Yup'ik culture and Yugtun language from their parents and community. Now they see first-hand how strongly the English language, media, and way of life are influencing their children and grandchildren, and how that is affecting students' education and future life opportunities. When students learn in their native language totally integrated within their culture, their engagement with schooling is enhanced together with their mental mindset and sense of identity. These are invaluable outcomes for students to function as effective members of their communities, moving fluidly among the languages and cultures relevant to their lives. Consequently, YEG members are in the best position to formulate research questions and direct project implementation themselves, not external test developers. Also, by controlling the project, members are positioned to garner support for the project from their community.

In essence, the Yup'ik Culture and Language Measurement project is designed to reflect the view of the Māori scholar Linda Tuhiwai Smith: "When Indigenous peoples become the researchers and not merely the researched, the activity of research is transformed. Questions are framed differently, priorities are ranked differently, problems are defined differently, and people participate on different terms" (Smith, 2021, p. 250).

Language assessment development processes: an overview

Through in-person and online workshops, YEG members collaborated with native leaders and researchers to discuss critical issues involved in developing the Yup'ik Culture and Language Measurement. The Expert Group decided that the Measurement should comprise three subtests, each with two components. They are: (a) Oral Language (Listening and Speaking), (b) Yup'ik Cultural Awareness, (Non-verbal Communication and Yup'ik Worldview), and (c) Literacy (Reading and Writing). All three subtests and their components are administered in Yugtun and students are expected to respond in Yugtun. Although the processes involved in developing the Yup'ik Culture and Language Measurement described below are presented sequentially, the activities occurred over six years and YEG members refined their ideas and decisions as the project evolved. Generally, project ideas evolved through cyclical and iterative, rather than step-by-step linear, processes.

Each subtest began with Expert Group members discussing preliminary questions and making decisions which served as road maps for developing assessment frameworks¹⁰ and test items. For example, members decided the nature, structure, and critical discourse features of the Yugtun language and Yup'ik culture to be included in the assessment and identified features appropriate for specific Grade clusters - commonly kindergarten to Grade 1, Grades 2 and 3, Grades 4 and 5, and Grade 6. Test items were prepared using test item specification templates¹¹ which were then reviewed and, if necessary, refined by colleagues. Test administration manuals were prepared, and administrators trained. Each subtest was field-tested, and feedback gathered for YEG members to select items based on cultural relevance and statistical properties: item difficulty, item discrimination, and subtest reliability.

Initially test items were prepared for paper-and-pencil administration, either on a one-to-one or group basis. After field-testing the Oral Language and Cultural Awareness items, the Expert Group decided they needed to change to an online administration system. In early 2023, the Yup'ik Culture and Language Measurement was

¹⁰ Assessment frameworks “describe what skills and knowledge should be assessed in each subject area” (National Center for Educational Statistics, n.d.).

¹¹ Test item specification templates guide item writers in defining the content and format of items as well as specifying administrative requirements.

administered to more than 1,000 students in kindergarten through Grade 6 in all bilingual schools. Appendix A shows the map for administering the assessments, gathering students' responses, and scoring mechanisms for online administration of the Yup'ik Culture and Language Measurement.

In addition, Expert Group members decided what weightings should be given to subtest components to establish composite measures for Oral Language, Literacy, and Yup'ik Cultural Awareness, as well as Yugtun Language Proficiency and an overall measure, known as the Yup'ik Culture and Language Measurement. Expert Group members selected weightings that reflected the importance of a subtest and its components to achieving project goals. Figure 2 shows the map of the relationships and weightings between subtests and composite measures for the Yup'ik Culture and Language Measurement.

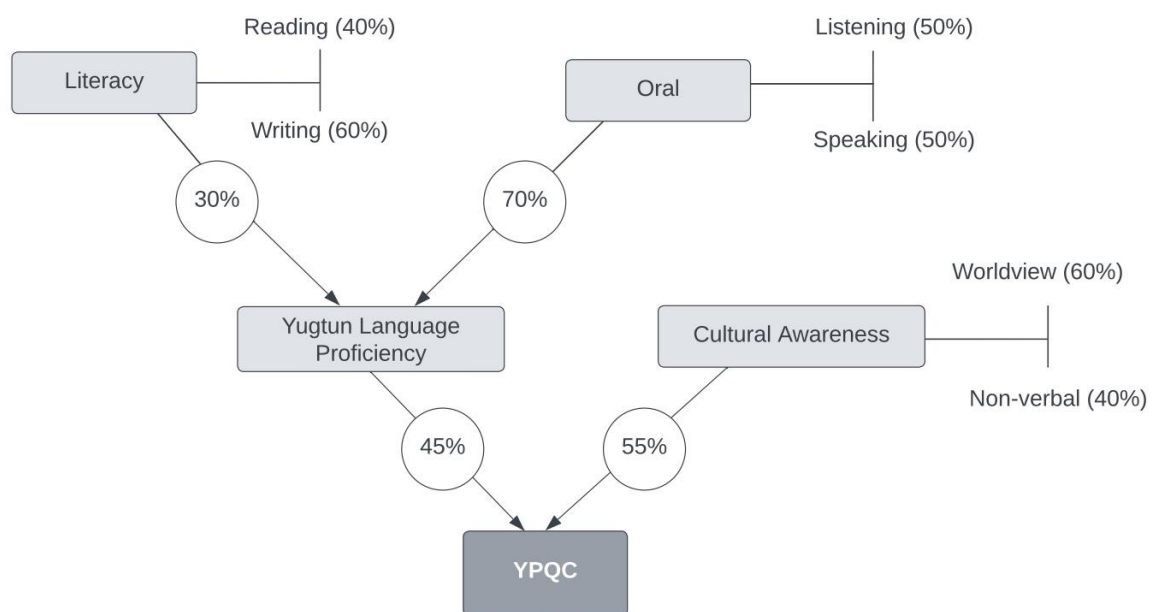


Figure 2. Yup'ik Culture and Language Measurement (YPQC): components and weightings

Having made decisions about constructing all measures represented in Figure 2, the Expert Group identified scores representing proficiency levels and benchmarks. Such information is critical, enabling users of assessment results to know if a student would be regarded as being proficient in any component of the Yup'ik Culture and Language Measurement.

Throughout 2023, during the final stages of developing the Measurement, a data management and reporting system is being developed. Expert Group members developed reporting templates for students/parents, teachers, schools, and district officials. Student reports will be available in Yugtun and English.

Implementation of the co-designed Yup'ik Culture and Language Measurement (YPQC) project—Challenges

Project developers addressed many challenges, including the socio-cultural issues. With project personnel bringing their own worldviews—Yup'ik, other Indigenous, and mainstream (settler-colonial, national language, etc.) worldviews—to the project, questions needed to be considered such as: could those worldviews complement one another and, if so, what are the implications for project development?

One potential approach might not have considered responding to those questions and, instead, situated the project within the framework of the dominant and hegemonic English-based worldview. Solano-Flores noted that examining socio-cultural factors is not always included in test development processes (Solano-Flores, 2011). However, Yup'ik values and beliefs are the cornerstones for the Yup'ik Culture and Language Measurement project. YEG members understood that it was critical to address socio-cultural factors so that the assessment would sustain their culture, as well as being linguistically valid and reliable.

Barnhardt and Kawagley (2005) proposed an alternate approach to situating research projects within the context of varying worldviews. Instead of different worldviews being considered as disparate knowledge systems, they propose integrating Indigenous knowledge and mainstream systems into a “comprehensive holistic system that can better serve all students, while at the same time preserving the essential integrity of each component of the larger overlapping system” (Barnhardt & Kawagley, 2005, p.16). Categories of commonalities include habits of mind, skills and procedures, and knowledge. Furthermore, they propose that research related to Indigenous language learning should “extend beyond the makeup of the language itself to include the thought processes embedded in the language, as well as how, when, where, and for what purposes the language is used” (Barnhardt & Kawagley, 2005, p. 19).

Challenge 1: Developing a Yup'ik Cultural Awareness subtest

Many challenges emerged during the development of the Yup'ik Cultural Awareness subtest. These included Expert Group members identifying which Yup'ik cultural awareness features could be expected of students from kindergarten to Grade 6, particularly when students across the district have widely varying experiences and opportunities to learn those features. Furthermore, Yup'ik Cultural Awareness features are not taught in a direct, structured way in schools. Expert Group members, several of whom grew up in Yup'ik villages, had extensive discussions on how to structure their Yup'ik Cultural Awareness subtest to accommodate those variations and not penalize students. Although cultural awareness features are not included explicitly in current curriculum documents, Expert Group members anticipate the significance of learning both Yup'ik culture and Yugtun, and their interconnectedness, will increase among educators and administrators, and evidence will become available demonstrating the value for students' academic performance and personal well-being.

Expert Group members applied their ideas to co-developing an assessment structure that needed to accommodate the varying lived experiences of students across the district and their opportunities to learn and understand Yup'ik culture. Students living in villages where Yugtun is commonly spoken, and where Yup'ik ways of living and surviving are part of daily life, could have several opportunities to understand their cultural heritage. In contrast, students living where the Yup'ik culture is becoming increasingly influenced by the dominant English-oriented culture may have fewer opportunities.

Approximately 70% of the district's 4,000 students live in remote villages in which Yup'ik communities rely mainly on hunting, fishing, and gathering local foods. Local resources are used not only for food, but also for clothing, shelter, and transport. Maintaining this subsistence-living culture and lifestyle requires strong and clear communication strategies, for example, whether people are hunting seals from small open boats in the Bering Sea or are stranded on the tundra without communication systems.

Furthermore, even if students are growing up in subsistence-living villages, YEG members said they could not assume that all students would have the same

experiences with Yup'ik culture and worldview, and non-verbal communication techniques. The villages are in different environmental regions—coastal, tundra and river—each with varying means of communication and ways of living. To respond to those differences YEG members searched for regional commonalities when considering the content, presentation and administration of Non-verbal Communication and Yup'ik Worldview assessment items.

Challenge 1.1: Yup'ik Worldview component

In keeping with the tenets set by the Expert Group, Yup'ik Worldview items incorporate a set of interrelated beliefs comprising Yup'ik peoples' views of reality and life (that is, beliefs about motivations, social behavior, and human capacities). These are usually known as *qanruyutet* (Kawagley, 2006). Critical components for constructing Yup'ik Worldview items are mindfulness, mental health, spirituality, behavior, respect, sharing, elders, food, wilderness, environment, and weather.

During the first workshop to develop their Yup'ik Worldview assessment, Expert Group members considered fundamental questions such as:

1. What does *A Yup'ik Worldview* mean?
2. What is our purpose in creating a test about Yup'ik Worldview? What do we want? Why? What's the community's perspective? District's perspective? State's perspective?
3. What differentiates a proficient speaker from one who is not proficient?
4. What are the critical parts/pieces/features of Yup'ik Worldview? Behavior, traditions, celebrations?
5. What is the construct(s) to be measured? For example, a person with enough of the Yup'ik language will be able to x, y, z.

Of particular significance for developing the Yup'ik Worldview component was YEG members sharing their own views of what they mean by Yup'ik Worldview before attempting to write test items. Examples of those views are:

- “I think values are very important to know and practice. They help us (know) how to act or behave in relation to self, family, community, animals, and the environment around us.”

- “One must have awareness of surroundings, in relation to others and the environment. Subsisting and surviving are also very important because they connect us to the land and other living things around us.”
- “The more a person knows about his/her own culture, the more well-grounded the person is” (YEG workshop, December 2018, personal communication).

Expert Group members believed it was critical for the Yup'ik Worldview component to reflect interrelations across the spiritual, human, and natural realms. Members also recognized that some aspects of their worldview were related to students' everyday lives and therefore were more concrete concepts than other aspects. For example, food was regarded as a concrete concept, whereas spirituality and mindfulness were abstract concepts.

The degree to which a particular Yup'ik Worldview concept was regarded as concrete or abstract had implications for structuring the Yup'ik Worldview component. Expert Group members categorized their Yup'ik Worldview aspects into one of five levels ranging from concrete to abstract concepts. Each level represented a different proficiency level: Level 1–*Ellangaralia* (Beginning); Level 2–*Taringeksuarangelria* (Emerging); Level 3–*Qanruteksugngarilria* (Developing); Level 4–*Qanruteksugngaluku taringnaqluni* (Capable); and Level 5–*Qanruyutet Kaumaluki* (Experienced/Exceptional). The Group then constructed their Yup'ik Worldview assessment with items ranging from concrete to abstract concepts (Table 1).

Table 1. Yup'ik Worldview: items ranging from concrete to abstract concepts (extract)

Concept Type	CONCRETE				ABSTRACT
	I	II	III	IV	V
Proficiency Level					
Worldview Concept	FOOD	ELDERS	SELF AWARENESS	MENTAL HEALTH	SPIRITUALITY
Worldview Aspect (Yugtun & English)	Neqkaten mer'arkaten-llu naaqaqeksauaki. Don't play with your food.	Cailkami camek tangerquvet teguyaqunaku, pikestengqertuq. If you see things on the ground, don't take them. They have owners.	Atanrusaagpeknak. Do not be bossy.	Nepaunata yuugarkaugukut. We are to live peaceably.	Cauyaq-gguq kenkauguq. They say the drum is a form of love.

Notably, the structure of the Cultural Awareness (Yup'ik Worldview/Non-verbal Communication) subtest differs from the structures of the Oral Language and Literacy subtests. These varying structures reflect the Yup'ik socio-cultural factors embedded within the concepts and language skills to be assessed. For example, development of the Oral Language subtest began by identifying aspects of language use, such as accuracy and function, deemed to be important by the YEG for learning the language. Although the approach to the Oral Language assessment was researcher-instigated, the overall project design ensured the agency of the YEG, who considered the approach very carefully and unpacked and repackaged the language requisites many, many times.

In relation to developing the Yup'ik Worldview component of the Cultural Awareness subtest, Expert Group members carefully considered the holistic nature, relational structures, and concepts representing their Yup'ik Worldview i.e., their values, attitudes, stories, actions, and ways of being Yup'ik. Before developing specific items, they began by sharing their views of what they mean by Yup'ik Worldview and how an understanding of their worldview is enacted within their daily lives. It was only after exploring these topics in depth that Expert Group members decided the categories (e.g., food, elders, spirituality, mindfulness) that were important to include in the Yup'ik Worldview component of the Cultural Awareness subtest (Table 1).

Challenge 1.2: Non-verbal Communication component

Expert Group members spent considerable time addressing fundamental questions related to non-verbal communication techniques, all of which had implications for the assessment structure, preparing items and administering the assessment. Questions addressed included:

- Are some or all non-verbal expressions developmental (e.g., do young school children require time to attain some non-verbal expressions)?
- Are there levels of mastery for non-verbal expressions (e.g., do Yup'ik students demonstrate developmental mastery showing some knowledge, but not total knowledge from the beginning)? Or is knowledge such that students know it, or don't know it from early ages?
- Are there interactions between non-verbal and verbal expressions (e.g., when this expression is said with that expression, it means ... or else it means ...)?

To faithfully reflect the Yup'ik culture, the Expert Group decided that non-verbal communication items should be framed within the relational contexts encountered daily by Yup'ik children. Expert Group members view effective communication (including non-verbal) within these contexts as being critical to the survival of Yup'ik people living in remote areas of the tundra and elsewhere. The relational contexts within Yup'ik culture that informed the structure of the Non-Verbal Communication Assessment Framework (Table 2) are: (a) child-to-child, (b) child-to-adult, (c) adult-to-child, and (d) adult-to-adult communications, as well as non-verbal communication techniques that are universal, independent of these four contexts. These universal techniques were called universal cross-relationship features (Table 2).

Table 2. Non-verbal communications assessment framework (extract)

Component	Assessed Elements		Grades			
	Nonverbal Feature	SubComponent	P-1	2-3	4-5	6
Universal Cross-relationship Features	Shrug (don't know)	Response to Requests	x	x	x	x
	Eye Raise (affirmation)	Response to Requests	x	x	x	x
	Eye pointing (direct to)	Response to Requests	x	x	x	x
	Nose scrunching (dissatisfaction)	Response to Requests	x	x	x	x
Child-Child	Quick lip stretch (scared)	Demonstrating Emotions		x	x	x
	Nudging (announcing presence)	Attention Getting		x	x	x
Child-Adult	Focused Stare (defiance)	Attention Getting			x	x
	Avoiding eye contact (respect)	Respect			x	x
Adult-Child	Focused Stare (pay attention)	Attention Getting			x	x
	Receipt of Public Display of Affection	Demonstrating Emotions			x	x
	Eye attention (notice toward)	Attention Getting			x	x
	Poking (common understanding)	Attention Getting			x	x
	Quick blink with one or both eyes (tell, signal of a joke)	Attention Getting			x	x
Adult-Adult	Quick lip stretch (apprehensive, nervous, shy, don't want to act first/I might be making a mistake.)	Demonstrating Emotions				x
	Eye attention (notice toward)	Attention Getting				x
	Poking (common understanding)	Attention Getting				x
	Quick blink with one or both eyes (tell, signal of a joke)	Attention Getting				x

Note: X represents non-verbal communication items developed for the grade clusters.

Within the different universal and relational contexts, school students' reasons for conveying messages non-verbally include: (a) responding to requests; (b) demonstrating emotions; and (c) getting attention. Consequently, the YEG specified several non-verbal features/actions associated with those reasons, such as a person avoiding eye contact as a means of showing respect or scrunching the nose to display dissatisfaction (Table 2). The YEG then developed test items for each of those non-verbal communication features/actions and students are asked to identify the meaning of specific non-verbal gestures or actions as well as demonstrating how they would communicate specific messages non-verbally.

The non-verbal communication features regarded as being universal were judged by the YEG to be important for students at all elementary levels. Other techniques/actions were regarded as being appropriate for students at specific Grade levels and are ordered to show increasing levels of proficiency in non-verbal communication. Expert Group members also considered whether students would be required to respond in Yugtun or be allowed to respond in a language they were most comfortable using

English or Yugtun. Students are allowed to respond to the universal cross-relationship items in either Yugtun or English.

Challenge 2: Developing YPQC as a high-quality assessment

Another challenge for the YEG and researchers was collecting evidence to demonstrate that the measurement would be recognized as a high-quality assessment valued by Yup'ik people, as well as educators, administrators, and decision-makers within the mainstream culture. Researchers considered two strategies through which the YEG would be well-positioned to achieve their aim of a high-quality Yup'ik Culture and Language Measurement from the mainstream perspective. Namely, project developers gather evidence:

1. That meets requirements in the U.S. Department of Education Peer Review State Assessment Systems processes (U.S. Department of Education, 2018). This document provides guidance to States developing and implementing assessment systems whereby they would be able to meet their accountability obligations for receiving federal government funding. (See Figure 3 for the map outlining the Critical Elements for State Assessment Peer Review.)
2. To construct an Assessment Use Argument that is, “a conceptual framework for guiding the development and use of a particular language assessment, including the interpretations and uses we make on the basis of the assessment” (Bachman & Palmer, 2010, p. 99). This is a strategy for “investigating the extent to which the intended use of a particular assessment is, in fact, justified” (Bachman & Palmer, 2010, p. 95).

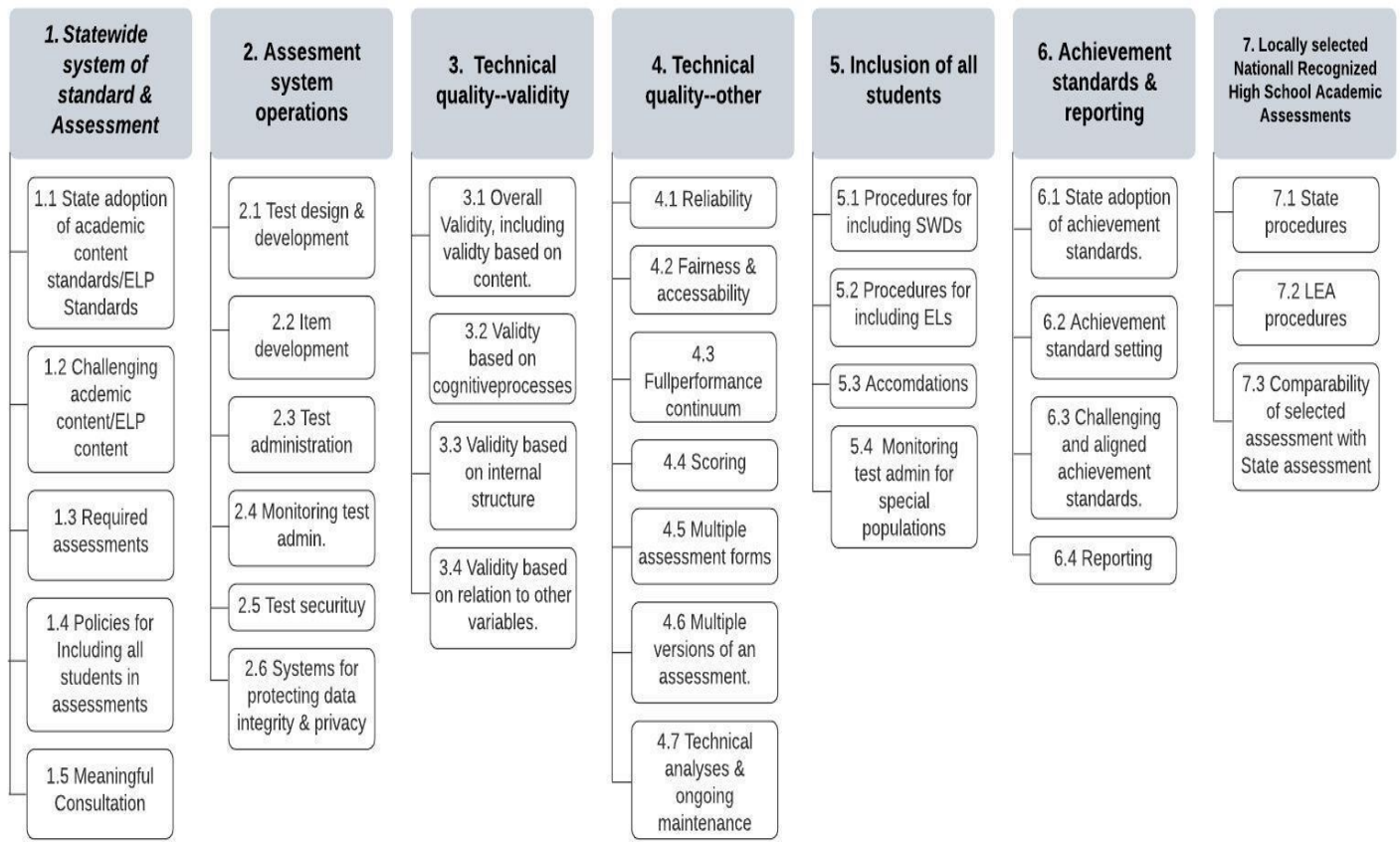


Figure 3. Critical elements for state assessment peer review adapted from U.S. Department of Education (2018, p. 29)

Both strategies will be incorporated into a technical report. Given that the project is currently ongoing and that the researchers have presented evidence to district leadership regarding meeting Critical Elements in the Assessment Peer Review Process document, examples of that evidence are discussed below. Critical Elements in the Assessment Peer Review Process document (see Figure 3) include: (a) 2. Assessment system operations, (b) 3. Technical quality-validity, and (c) 6. Achievement standards and reporting. Descriptions and examples of evidence are provided for three Critical Elements.

For example, under 2.2 *Item Development* in the Assessment system operations, Critical Element items are required to have been developed using reasonable and technically sound procedures. Expert Group members prepared their items using item specification templates, such as in Appendix B. These templates facilitate preparing items that align with the curriculum/standards and promote valid and reliable

assessments. Expert Group members discussed issues such as: (a) the language construct to be assessed, (b) why that construct was included, and (c) how the item needed to be designed to assess the construct as validly and reliably as possible. After field testing items, researchers prepared data summaries of the statistical properties of items: (a) numbers and proportions of students who reached or exceeded the Benchmark (i.e., proficiency levels 4 and 5), (b) item statistical characteristics of difficulty and discrimination, (c) statistical reliability such as the Cronbach Alpha measure, and (d) the number of students at each proficiency level for each item. Expert Group members then used this information, in conjunction with feedback from test administrators, to improve the quality of the test.

The validity of an assessment can be based on topics listed under the Critical Element, 3. *Technical quality – validity*, in the U.S. Government’s State Assessment Peer Review document (see Figure 3). However, the Assessment Peer Review Process documentation does not specifically mention cultural validity. Nevertheless, it is critical that the YEG has evidence of the cultural validity of their test. One approach is to address the following questions Solano-Flores recommends for examining cultural validity (2011, p. 17).

1. To what extent are testing practices consistent with current thinking in the culture and language sciences?
2. How accurately are culturally and linguistically diverse populations specified, and how properly are they represented throughout the entire process of test development?
3. To what extent does the process of test development take into consideration ways in which students from different cultural backgrounds interpret items?
4. To what extent are test review practices based on multiple sources of information, and how well are various forms of data analysis and data interpretation used in combination to examine how culture influences student performance?

Evidence of cultural validity of the Yup’ik Culture and Language Measurement is that all members of the YEG are experts in their native language, Yugtun, and are either currently teaching Yugtun or have had many years of experience teaching the language

within the district. Compelling evidence of the cultural validity of the K-6 assessment comes from the external evaluator's report. When Expert Group members described their experiences of being involved in the project, some members commented that:

"... the test is very unique to Yugtun.

... it (the test) encompasses every part of our culture. It is very deep. Even the culture part is very deep" (2021).

Under *6.4 Reporting*, in the Critical Element, Achievement standards and reporting (see Figure 3), evidence is required that "assessment results ... include itemized score analyses, results according to proficiency levels, performance level descriptors, and, as appropriate, analyses that go beyond the total score (e.g., analysis of results by strand/domain/component" (U.S. Department of Education, 2018, p. 71). Expert Group members specified information which would be most relevant to report for their different audiences—students/parents, teachers, schools, and district officials. In addition, Expert Group members developed two supporting documents—one in Yugtun, the other in English—with proficiency level descriptors for the measures shown in Figure 2. Individual student reports will be available in two parts -- one reporting Yugtun Language Proficiency results, and the other reporting Yup'ik Cultural Awareness results. All reports will include results for the overall Yup'ik Culture and Language Measurement and will be available online for Yup'ik people as well as school district teachers and administrators.

Challenge 3: Developing YPQC as culturally sustaining

Yup'ik Expert Group members addressed the challenges of designing the Cultural Awareness subtest, meeting the standards of a high-quality assessment, and addressing the challenge of establishing the test's cultural validity. Yet, the Yup'ik Culture and Language Measurement had to not only be culturally valid, but also support the district's strategy to sustain the Yup'ik culture. Thus, a further challenge was to build YEG expertise in the technical aspects of language test development, so that the Yup'ik Culture and Language Measurement would be sustained after external funding had ended. Expert Group members learned and continue to refine their skills in

- what makes a test reliable and valid
- writing, reviewing, analyzing, and revising test items
- structuring and compiling a coherent and strongly purposed assessment.

Provisional evidence of the Yup'ik Culture and Language Measurement being culturally sustaining also comes from Expert Group members reporting their experiences of participating in the project to the external evaluator. For example, members stated that:

- "We can steer our own assessments using our language and culture and include unwritten important parts of our language which have never been included in any of our (previous) Yugtun assessments.
- We thought about our language and culture. We didn't start by looking at English testing, which is a good thing. We also did not translate. So, the test is very unique to Yugtun. Another benefit is that we will be able to track language learning as the child goes up the Grade levels" (2021).

Challenge 4: Building knowledge, relationships and trust

Lastly, a particular challenge for the University of Wisconsin-Madison's non-native researchers was understanding the socio-cultural factors and implications for their own roles when collaborating with native people (Leonard, 2021). The researchers were bringing their own perspectives and worldviews developed within the non-Indigenous culture, not from within an Indigenous paradigm (La France & Nichols, 2009). The researchers accepted that they were not the experts in the cultural and linguistic aspects that needed to be considered. Significantly, they appreciated that a rebalance of the commonly used research project power structures had to occur through native leaders, rather than non-native researchers, driving the project, its outcomes, and its educational implementation. In building relationships and gaining the trust of their native colleagues, the researchers heeded advice from native researchers which is summarized in the title of a publication from the National Congress of American Indians: 'Walk Softly and Listen Carefully' Building research relationships with tribal communities (NCAI, 2012).

To meet the challenges of their role change, the researchers consulted extensively with native educators within the district and native leaders from other communities. During this initial period, three native educators visited the researchers to explain key aspects of Yup'ik culture and Yugtun that would influence assessment development and the unique educational, cultural, and linguistic contexts within which the project would be conducted. A researcher provided an introductory seminar on technical aspects of developing language assessments. Topics included: (a) pros and cons of different ways of designing and structuring a language assessment, (b) how different types of assessment items assess different language features, and (c) issues associated with designing and developing a valid language assessment.

The Yup'ik educators explained how these ideas could be appropriate and culturally relevant for their project and decided to continue their quest to develop their own Yup'ik culture and Yugtun assessment. Further discussions were held over several months between the native educators and the researchers to articulate a focus for a project and how it could be developed. Subsequently, funding for the project became available through the U.S. Department of Education.

Addressing the challenges - designing the Cultural Awareness subtest, producing a high-quality and culturally valid assessment, culturally sustaining the assessment, and building trust and relationships – has led to those directly involved being on a journey together which has been mutually beneficial, but also can have far-reaching effects for children, their futures and their communities.

Conclusion

Lower Kuskokwim School District officials in Alaska recognize that the nature and use of the Yugtun language is shifting rapidly due to the all-pervasive influence of English. Previous attempts by district educators to build students' Yugtun language proficiency had not been as successful as hoped. Assessments translated from English did not identify key Yugtun language or Yup'ik cultural features. This project is a serious re-evaluation of how to develop a valid and culturally sustainable language and culture measurement for Indigenous language proficiency. It is designed to meet the needs of the Yup'ik community and recognizes the impact of Yugtun and Yup'ik cultural knowledge on students' well-being and education.

The re-evaluation led to the integration of cultural and language measurements into the assessment tool, rather than just a focus on language acquisition using a model based on assessment of English proficiency. This recognized the content and structure of an assessment cannot simply be transferred from one language to another. There are many factors that need to be considered because any assessment tool serves multiple purposes, some of which are not always obvious on first consideration.

The project successfully achieved its three aims.

1. The assessment tool is based on community-based participatory research principles and practices so that it acts as a culturally sustaining and valid Yup'ik Culture and Language Measurement.
2. The system through which the assessment tool was developed can provide critical data with which to examine relationships across Yup'ik culture, Yugtun language, as well as other measures of academic success such as English language proficiency and academic content.
3. The project is of benefit to both tribal and non-tribal educators wishing to expand their own native language program so that it reflects their educational, cultural, and linguistic goals.

The process of developing the K-6 Yup'ik Culture and Language Measurement serves as a model for developing assessment tools for other Indigenous languages, and for non-tribal educators as well, because it demonstrates:

1. The importance of assessing students in their own native languages. Students may perform poorly in assessments of their English language skills but be quite proficient in their native language. It is important to assess students in their native language to understand and better support them in their schooling and their learning or maintenance of their language. Students have varied language backgrounds and opportunities e.g. in terms of an English only assessment, a wrong picture may be created, but also a clearer picture about the range of proficiency will inform language maintenance or revival. In the Decade of Indigenous Languages, we have become more acutely aware of the threat to languages spoken by small populations of people and the value of preserving them.

2. That language cannot be separated from the culture and environment of its speakers. The Expert Group and the Yup'ik community realized that the two were interwoven and it was vital that young people became proficient in the language if the culture was to continue to exist and vice versa. The project successfully infused the assessment tool with Yup'ik culture to meet the aspirations of the community.
3. Recognition of the sovereignty, expertise, and aspirations of Yup'ik people in the district. With Yup'ik community members leading and owning the project, a better assessment tool is produced. The Yup'ik community, Yup'ik educators, and Yugtun language experts are the experts in their language and culture. They know what educational outcomes they wish to achieve. In this case, an assessment tool that is a culturally sustaining Alaska Native language assessment, provides evidence to meet requirements in the U.S. Government's assessment peer review guidelines and, supports the district's language programs.
4. The importance of project co-design. Research partners commit to ongoing and authentic collaboration with Indigenous expertise. In this project it was a prerequisite that researchers involved in the project: honor tribal sovereignty and governance; respect the Yup'ik Worldview; recognize that Yup'ik people owned the project; recognize that the assessment tool had to be developed by Yup'ik educators and language experts; build on the district's strong ethos of community collaboration; and build the capacity of the district's staff in technical aspects of language test development so that the assessment would be sustainable.
5. Thoughtful positioning of incoming expertise is necessary. The need for language researchers and experts, government officials, university administrators to recognize that involvement in such a co-designed project means that sometimes they are in the role of learner as they may only be experts in some areas. The researchers in this project had to rely on the Yup'ik community to educate them on Yup'ik culture, Yugtun language issues associated with the assessment tool, and effective ways of collaborating. The researchers in their turn were able to provide expertise on how to ensure the assessment tool was valid.

6. That it is important to take the time to reach a deep understanding of what in fact needs to be measured by an assessment tool. A superficial solution may be simply importing an assessment tool used for testing proficiency in another language and for another culture; but this approach does not recognize the complex interplay between language and culture and requirements of different audiences.

Ultimately, it was the process that led to the successful outcome of a useful, multi-purpose assessment tool that was at the heart of the project and is being extended by the YEG to develop a Grade 7 to 12 Yup'ik Culture and Language Measurement. This process can be used by researchers and linguists in other places and other situations. The process was important in itself; not just because of the outcome it produced. Undertaking the process increased the understanding of Yup'ik culture and the Yugtun language of the disparate group of people involved in the project. It also increased the recognition of, and respect for, the expertise, knowledge, experience and leadership of community members and local native language teachers and educators and the value they place on the educational environment of their children and students. Not only that, the processes raised awareness of the importance of Yup'ik culture and Yugtun language, and the value for the community in keeping and nurturing these aspects of their lives. It enables multilingual students to have their language and cultural learning achievements recognized and to feel proud of their developing expertise. This is important in a situation where English is rapidly becoming the dominant language and proficiency in English is sometimes the only proficiency that is measured.

By developing the culturally sustaining and valid Alaska Native language assessment, YEG members are making a far-reaching contribution to the well-being of their students, their communities, and to Native language revitalization.

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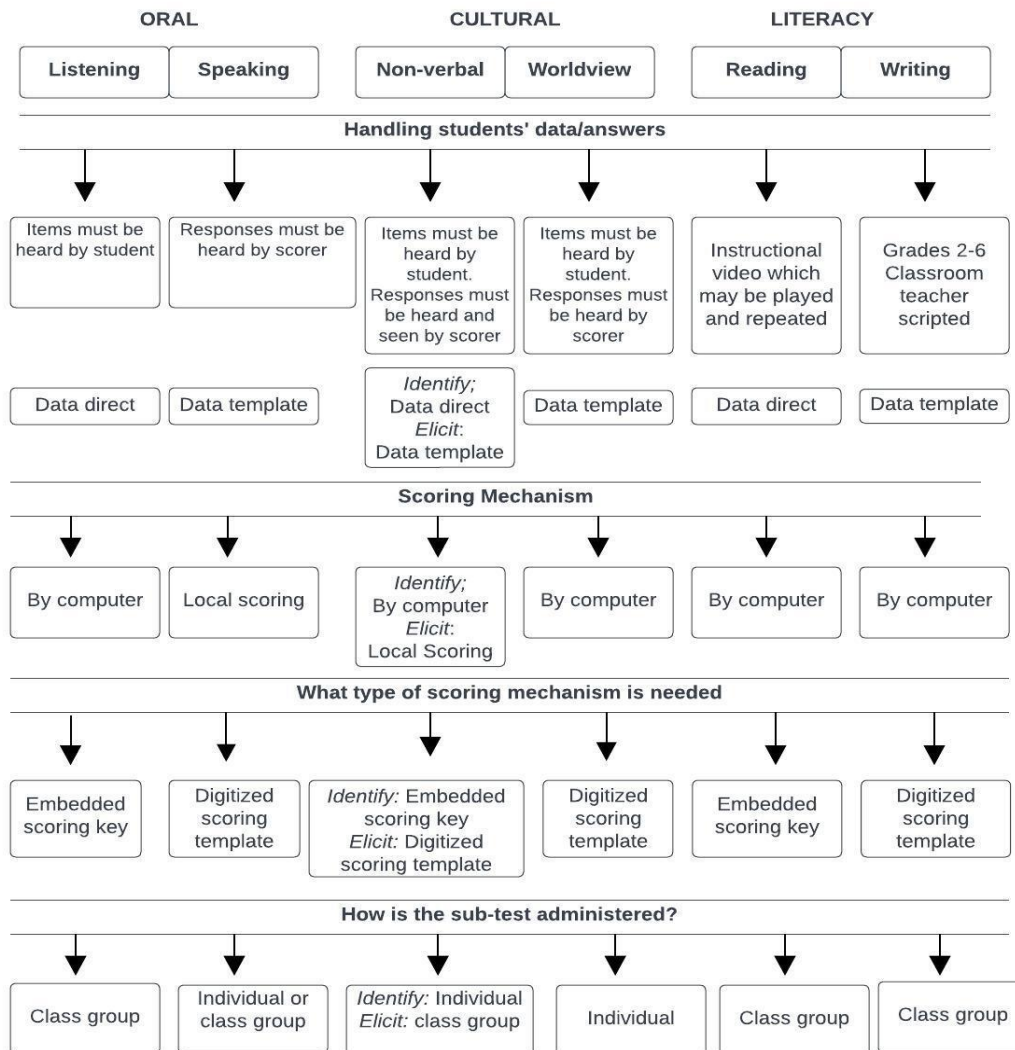
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Appendix A. Map: The Yup'ik Culture and Language Measurement



Appendix B. Test item specification template for writing Yup'ik Worldview items

Response Language: Yup'ik or English or mixed

Proficiency Level 1 2 3 4 5

Code = Test (C); Proficiency Level (1,2,3,4, or 5); Aspect (W); Dash (-);

Category (FD: food, MF: Mindfulness, SP: Spirituality, SH: Sharing (see coding sheet for more);

Item Number (01-50); Prompt Type (V, G, N, S)

Please create the code for this item.

1. Topic:

2. SAY: What will you say to get student ready for the item? (EX: Today we will be talking about....)

3. Prompt with Question/task: What is the student's task for this item. (EX: When you see the pictures, tell me what each means...)

4. Correct Response

5. Redirect: If student does not understand how will you restate or re-ask?

What supports does the prompt/question need? Video (V) Graphic (G): one or more photos or illustrations Summary (S) no props or actions (N)

Describe the graphics or support:

Rubric to score answers:

Level	Stages	Descriptions
Level 1	Beginning Ellangaralria	<ul style="list-style-type: none"> • Can point to correct picture • Can give a one-word response. • Able to perform/demonstrate concrete tasks
Level 2	Emerging Taringeksuarangelria	<ul style="list-style-type: none"> • Is able to describe the concept with visual prompts or help • Has literal understanding of qanruyun
Level 3	Developing Qanruteksugngarilria	<ul style="list-style-type: none"> • Can give an example and tell why using simple explanations. • Has some understanding of qanruyun with some inaccuracies.
Level 4	Capable Qanruteksugngaluku taringnaqluni	<ul style="list-style-type: none"> • Is able to explain a qanruyun. • Is able to apply the qanruyun in various contexts. • Is able to express reasons behind qanruyun.
Level 5	Experienced/Exceptional Qanruyutet Kaumaluki	<ul style="list-style-type: none"> • Is able to explain the abstract concept of qanruyutet using detail and tell why. • can provide an example(s) of a qanruyun.