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Nunalleq, Stories from the Village of Our Ancestors: Co-designing a Multi-vocal Educational Resource Based on an Archaeological Excavation

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ABSTRACT

In 2017, the Nunalleq Project initiated the co-design of a digital educational resource for schoolchildren in the Yukon-Kuskokwim region that curates the story of the archaeological excavations in a way which engages with Yup'ik ways of knowing and traditional oral storytelling. Here, we present an account of an archaeological outreach project which creatively unites science and history with traditional knowledge and contemporary engagements. Co-creation of the Nunalleq educational resource revealed the diverse ways in which people connect to the past, sometimes expected, sometimes surprising. In particular, the project made space for a younger generation of Yup'ik who are forging new relationships with their heritage inspired by the archaeology from Nunalleq through traditional dance, art and shared experience. Ultimately, this article explores co-design as a means to illuminate the processes of interpretation from varied perspectives and worldviews with the aim of better understanding how the methods we use frame the knowledge we create.

Résumé: En 2017, le Projet Nunalleq a lancé la co-conception d'une ressource éducative numérique à l'intention des écoliers de la région du Yukon-Kuskokwim. Elle propose une narration des fouilles archéologiques d'une manière s'inspirant des approches Yup'ik quant au savoir et au conte oral traditionnel. Nous présentons ici un exposé d'un projet de sensibilisation archéologique associant de manière créative la science et l'histoire au savoir traditionnel et aux engagements contemporains. La co-

création de la ressource éducative Nunalleq a mis en lumière les différents modes suivant lesquels les peuples se connectent au passé, certains étant prévisibles, d'autres plus surprenants parfois. Le projet a notamment ouvert un espace pour une génération plus jeune de Yup'ik dont les membres tissent des relations nouvelles avec leur héritage qui sont inspirées de l'archéologie de Nunalleq, dans le cadre de la danse traditionnelle, de l'art et d'une expérience partagée. En définitive, cet article étudie la co-conception comme un moyen d'éclairer les processus d'interprétation issus de perspectives et visions du monde multiples, dans l'objectif de mieux comprendre comment les méthodes que nous utilisons donnent leurs contours au savoir que nous créons.

Resumen: En 2017, el Proyecto Nunalleq inició el codiseño de un recurso educativo digital para alumnos en la región de Yukon-Kuskokwim, que organiza la historia de las excavaciones arqueológicas de una manera que se relaciona con las formas de conocimiento de los yup'ik y la narración oral tradicional. Aquí presentamos un relato de un proyecto de divulgación arqueológica que une creativamente la ciencia y la historia con el conocimiento tradicional y los compromisos contemporáneos. La co-creación del recurso educativo Nunalleq reveló las diversas formas en que las personas se conectan con el pasado, a veces esperado, a veces sorprendente. En particular, el proyecto hizo espacio para una generación más joven de yup'ik que está forjando nuevas relaciones con su herencia inspiradas en la arqueología de Nunalleq a través de la danza tradicional, el arte y la experiencia compartida. Finalmente, este artículo explora el codiseño como medio para iluminar los procesos de interpretación desde diversas perspectivas y visiones del mundo con el objetivo de comprender mejor cómo los métodos que utilizamos enmarcan el conocimiento que creamos.

KEYWORDS

Community archaeology, Co-design, Digital heritage, Yup'ik, Alaska Native, Outreach and impact

Introduction

Since 2009 Qanirtuuq Incorporated Native Corporation and an international team led by archaeologists from the University of Aberdeen, UK, have been racing against rising tides and melting permafrost to excavate

the remains of a late pre-contact Yup'ik settlement on Alaska's Bering Sea coast. In the intervening decade the site revealed a staggering collection approaching 100,000 artefacts, items that tell the story of how an ancient Yup'ik community thrived in this challenging environment. In August 2018, the *Nunalleq Culture and Archaeology Center*, an Alaska Native owned and run facility in Quinhagak, invited the public through its doors for the first time to view the collection in its entirety. At a time when indigenous communities across the world are reclaiming ownership of their cultural artefacts from museums and institutions, Nunalleq is a timely example of what can be achieved through balanced collaboration. However, a sense of ownership and identity runs deeper than the material remains (Hillerdal 2017a, b).

The Nunalleq Educational Resource, *Nunalleq, Stories from the Village of our Ancestors*, was conceived as a continuation of the local community's goals to save, preserve and share the archaeological material for future generations, and represents a core public outreach outcome for the Nunalleq project. The aim of the resource was to communicate the archaeological findings with Yup'ik schoolchildren (7–15 age range) as the core user-group. From the outset, the Quinhagak village board were unanimous that the resource should be digital media based to make it more appealing to the younger generation, continuing the growing trend of digital platforms for cultural engagement amongst Arctic regions (see for example the Thule house VR experience and *Journey to Kitigaaryuk* covered in Levy and Dawson 2014 and the Iñupiaq platform game *Never Alone* 2014 discussed by Schlag 2018). Fostering the culture of traditional knowledge-exchange that the excavations had established over the course of the project (Fienup-Riordan et al. 2015; Hillerdal et al. 2019), the educational resource was designed to facilitate a multi-vocal narrative on the archaeological site, making space for traditional knowledge and contemporary connections alongside scientific interpretations. As such, this paper explores the relationships emerging at the intersections between the autonomy of community curation and the scientific rigour of archaeological practice.

The Nunalleq Project

The Nunalleq Project is an ongoing collaborative endeavour between the University of Aberdeen, UK and the Native village of Quinhagak, Alaska. In a move to safeguard their archaeological heritage for future generations, this, for the region unusual,¹ project was initiated by the local community after artefacts had been found eroded out onto the beach. Despite archaeology not being part of the traditional Yup'ik way of relating to the past, the immediate threat posed by climate-enhanced erosion and the perceived

loss of cultural values among the younger generations, prompted a reevaluation of the benefits of archaeological excavation. With support from community Elders, the first excavation season took place in 2009, and now, 10 years later, 8 excavation seasons have been undertaken at Nunalleq (Knecht and Jones 2020). These excavations have revealed a late pre-contact Yup'ik settlement dating back to c. AD 1570-1675 (Ledger et al. 2018), a time period of which very little was previously known in Yup'ik history.

The site, located c. 5 km south of the contemporary village of Quinhagak, consisted of a single semi-subterranean sod and timber dwelling with multiple rooms, successively occupied by a small number of family groups over at least three clearly distinguishable occupation phases. Radiocarbon dating suggests this successive occupation lasted for around a century. The earliest house, dating back to around AD 1570,² appeared to have been continuously occupied for some generations, before it was abandoned and fell into ruin. After a short hiatus in occupation, the site was resettled, and a new house was built on top of the demolished remains of the previous building. The second dwelling was larger following a different layout than the earlier settlement. Two occupation phases were identifiable within the second dwelling, separated by an extensive remodelling episode. Life at Nunalleq ended in a violent attack, dating back between AD 1645 and 1675, where the house was burnt down and abandoned for good (Knecht and Jones 2020; Ledger et al. 2018). This attack is remembered in local oral history (Charlie Pleasant in Tennant and Bitar 1995), a remarkable event in a time period generally referred to as the 'Bow and Arrow Wars' in Yup'ik oral history, and known to have been a time of unrest all over the Yup'ik culture area (see Fienup-Riordan and Rearden 2016).

Material recovered at Nunalleq and the scientific analyses of data offered by the archaeological excavations have revealed new knowledge about multiple aspects of pre-contact Yup'ik life, either lost or previously unknown to contemporary Yup'ik groups. Archaeology can be defined as the study of material culture; where material is measurable, functional and dateable—but culture is less so, relating more towards lived experience and contextual worldview (Watterson et al. 2020). The archaeological approach at Nunalleq offers a focussed insight into life in the past and contextualised material with recorded provenance which future generations can engage with for years to come. Balancing this approach with contemporary indigenous knowledge gives this archaeological material meaning in a way which moves towards better embodying the complex character of archaeological interpretation and the study of material culture, while ensuring that we are actively working towards making archaeology relevant for people today.

The parallel narratives told by oral history and archaeology are explored in the educational resource, which centres around a reconstructed dwelling

(or ‘sod house’ as traditional Yup’ik houses are referred to in the region) representative of the excavated remains of the structure occupied by the last generation living at Nunalleq before the attack. In addition to the reconstructed sod house, the site’s narrative is further contextualised in the surrounding landscape through pages presenting scenarios essential to pre-contact Yup’ik life and highly relevant to contemporary subsistence practice in the village today, focussing on the sea, ice and tundra.

A Brief Technical Overview of the Educational Resource

Original design decisions about the format of the educational resource were made based upon the intended user group, the hardware available within the school district and ease of access. Given the potential issue of limited access to high-speed internet and the incurred costs for streaming web-based content in rural Alaska the team decided the most efficient solution would be to develop the educational resource as a stand-alone desktop application to run on school computers. The resource would be distributed on USB drives to regional schools³ to be installed as an executable file onto the desktop of their Mac or PC system. Additionally, the educational resource would be available for download online (www.seriousanimation.com/nunalleq).

Programming for the resource interface was completed by John Anderson of the 3DVisLab at the University of Dundee and adopted web-based technologies for interaction and navigation.⁴ Several criteria were taken into consideration when deciding which technology would be best suited to implement the resource. Varied media types (3D objects, video, audio and imagery) were required to be presented in an integrated fashion and woven together within a flexible and highly visual navigation system that could engage the user in exploration and encourage interactive learning. The software development approach also needed to be adaptive to new research findings emerging from the field, so that the information could be easily and swiftly integrated and the resource modified accordingly. It was also important that any dependencies on costly or restrictive software licenses, particularly with respect to the final distribution of the resource, were eliminated. For these reasons, the technical implementation was completed using free and open source web technologies. The final desktop application (Figure 1) was created using the open source Electron framework (<https://electronjs.org>), essentially a ‘wrapper’ that turns web content into a stand-alone application. The resource can easily be made available for all current major desktop operating systems and may also be adapted for web-based access in the future.

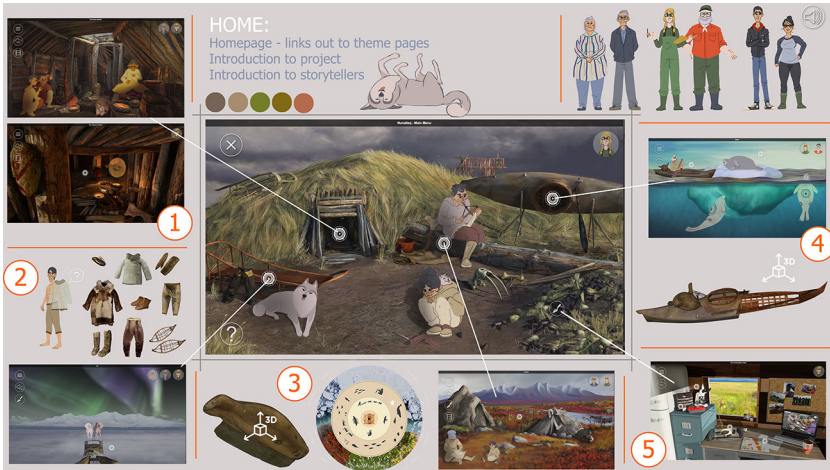


Figure 1. Layout map for the educational resource. Once the resource is launched and the introduction video either plays through or is skipped, users land on the home-screen, from which users can navigate inside a reconstruction of the house (1), to various locations within the surrounding landscape: ice (2), tundra (3) or water (4), and to the present-day project lab in Quinhagak (5). Mixed media content including 3D scanned models of artefacts from the site, photos, videos, soundbite insights and interactive pages can be explored

Improvising and being flexible in the creative development process was essential not only in the context of a live excavation, where interpretations can be modified over the course of each season, but crucially in the context of working with the community, whose feedback, suggestions and ambitions evolved over the course of the project.

Co-design and Content

The core collaborative team was formed of Qanirtuuq Inc. CEO Warren Jones, Qanirtuuq Inc. President, culture bearer and Elder Grace Hill, archaeological project directors Rick Knecht and Charlotta Hillerdal, local school teacher Dora Strunk, retired Yup'ik language teacher Pauline Matthew and youth representative Crystal Carter in addition to the production team, Alice Watterson, John Anderson and Tom Paxton, and a wide range of community, culture bearers, Elders and heritage professionals.

Given the scale of the project and the challenge presented by the geographical distance between the production team in Scotland and the Quinhagak village board (Qanirtuuq Inc., the ANCSA village corporation) and collaborators in Alaska, the first stage of design focussed on visual concept

development and establishment of a flexible framework which would lay the foundations for productive collaboration during the upcoming field season in 2017. This pre-production artwork tentatively began to consolidate some of the ideas and requests outlined by the original brief and formed the basis for workshopping these concepts with the local community and extended archaeology crew. The artwork mapped out a basic design for the interface which made space for the core research and narrative threads to come from the excavations and artefacts in a way which opened the floor to a variety of stakeholder insights and interpretations.

Underlying the framework design for the interface was a consciousness to present the story unravelled by the archaeological excavations in a way which was inclusive of traditional approaches to Yup'ik inter-generational teaching (Kawagley 1990), which favours spoken word rather than written text, and where possible avoided what was often referred to by the village board as 'the glass-case museum' approach. As such, the main interface presents the artefacts within their speculative environment and invites users to discover the objects and their interpretations by exploration rather than an ordered typology. Users can explore a reconstruction of the sod house from various vantage points and click on a selection of objects within the scene to bring up a 3D viewer with the relevant artefacts (Figure 2). Soundbites can be activated by clicking on icons which are representative of the source of information: male and female Elders and community members, archaeologists and young people.

Each scene encountered by the user, from the house to various locations in the wider landscape, was rendered as a looped animation with characters engaged in activities reinforcing the narrative, and using artefacts excavated from Nunalleq. Creative choices were developed through pre-production art which gave consideration to the mood and atmosphere of the reconstruction of the sod house and scenes from the wider environment. A style was developed which gave the final backdrop a look and feel closer to a painting than a computer-generated image and a hand-drawn, frame-by-frame approach was taken to character animation. These design choices were consciously made to craft an explicit message to the audience and stir an emotive response. The considered composition, lighting and use of colour within each scene infers the care and attention taken by the artist in crafting these images by hand, a sentiment which resonates with the philosophy of traditional Yup'ik craft and skill (see Andrew 2008; Fienup-Riordan 2007).

Characters for both soundbite icons and 'the ancestors' who occupy the reconstructed scenes were designed by animator Tom Paxton. The former were based on members of the project team while the latter were advised by historic photographs from the nineteenth and early twentieth centuries, showing pertinent activities, garments and jewellery. Early animal designs

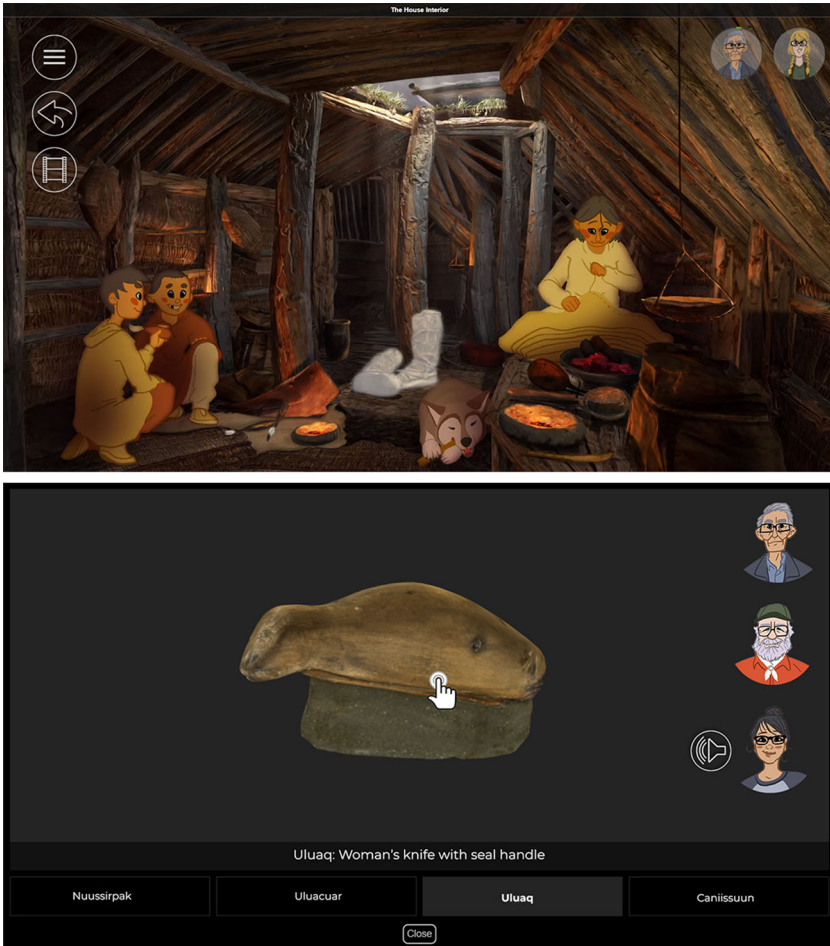


Figure 2. Sod house interior with clickable objects within the scene and the artefact viewer with a selection of soundbite icons

for sled dogs and seals were critiqued by the village board as being ‘too Disney and not very Yup’ik looking’. Consequently, the character designs were refined and adopted Yup’ik lines and curves referencing the carved representations of these animals excavated at Nunalleq (Figure 3). These included the distinctive ‘eyebrows’ of the masks and dolls, stylized designs similar to ivory carvings from Nunalleq, and features more closely resembling the specific breed of bearded seal favoured by Yup’ik people.

Furthermore, with regard to overall design decisions, including the wider landscape in the representation (via the sea, ice and tundra pages)



Figure 3. Character sheet demonstrating the development of the bearded seal character designs from Tom Paxton’s original designs at the top which evolved following feedback (photo reference by Paul Souders/Photodisc/Getty Images)

was vital in constructing a well-rounded representation of Yup’ik life then and now, as people in Quinhagak today still practice a largely subsistence-based lifestyle which represents a vital point of connection with their heritage (see Fienup-Riordan 2010; Rearden and Fienup-Riordan 2016). This is also reflected in the wide-reaching interpretations inferred from the archaeological research (e.g. Masson-MacLean et al. 2019). As such, in order to present an authentic and well-rounded representation of what the archaeology shows us *and* what we learn from indigenous knowledge it was important to place the site within its wider context. The final satellite page was dubbed ‘the archaeologist’s desk’ and presents a visual backdrop of the culture center lab in Quinhagak. This page details some of the analytical processes of the archaeologists through focussed interactives and

provides a forum to represent the excavations themselves in the context of present-day Quinhagak. Here, users engage with the scientific processes of archaeological interpretation and analysis which are often invisible to non-experts through interactive media such as a construction diagram of the sod house which builds up from the excavated trench, and pages which allow children to take finds under the microscope or analyse the micro-fauna from soil samples. In addition to these scientific narratives there is also a photo album which features images from the excavations paired with sound clips from the archaeologists, community and volunteers recounting anecdotal insights into their experiences of excavating at Nunalleq.

Incorporating these considerations and responding to the feedback from community members as part of an iterative methodology meant that the visual material put Yup'ik faces, voices, curation and philosophies at the forefront of this outreach material. This is in line with the mission statement of the Nunalleq Project as a whole: to engage in a socially aware, relevant and involved archaeology that has a bearing for people outside academia (Hillerdal 2017b; Hillerdal 2018). It also resonates with Smith (2012) assertion that people should recognise themselves and have an active role in representations of their culture. Thus, the Nunalleq educational resource exists as a piece of interactive media, born out of non-indigenous practice, which was guided by and pays homage to Yup'ik culture.

Compiling the Many Voices of Nunalleq

One aspect of Yup'ik identity and representation which has remained most resilient over time is the spoken language, *Yugtun*, and this was a significant focus point for the village board and wider Quinhagak community during the design process. As is the case for many Native communities, language and local dialect does not simply represent a point of cultural identity, but contains accumulated knowledge, philosophy and sense of place; ultimately representing entire ways of thinking and relating to the world (Roderick 2010). *Yugtun* is spoken as a first language by the Elder generation in Quinhagak, while the generation under 30 speak predominantly English. When the younger generation speak *Yugtun* it is spoken in a way which translates more literally from English, losing much of the original subtlety and grammar (pers comm Dora Strunk, April 2019; cf. Wyman 2009). Working within the resources available to this project the team endeavoured to name artefacts and script sections of narrative voice-overs for translation. Translations were undertaken by local Yup'ik schoolteachers Pauline Matthew and Dora Strunk, with additional assistance from college student Lonny Strunk, who majors in Yup'ik language

and computer science. Collaborating with Yup'ik speakers native to Quinhagak was important not simply because the project wanted to include community members, but because local dialects of *Yugtun* are variable, even between neighbouring villages (pers comm. Grace Hill, July 2018) and the village board were adamant that this should be reflected in the educational resource.

Oral storytelling has long been a traditional means of intergenerational teaching for many indigenous peoples throughout the Arctic and Subarctic regions (Mustonen and Lehtinen 2013). In line with this traditional mode of knowledge-exchange, the team elected to make the bulk of information within the educational resource spoken-word rather than anonymous text, resulting in a vibrant collection of voices both international and local, which more accurately reflects the diversity of the overall project. Much of the written body of work on Yup'ik tradition, knowledge and heritage have been expressed in a style sympathetic to this means of knowledge exchange, often conforming to Elder monologues and transcribed conversations (Rearden and Fienup-Riordan 2013). While the educational resource sought to adhere to these traditional modes of Yup'ik teaching, we were also conscious that this approach should make space for younger voices as an active part of the overall narrative. Local youth representative Crystal Carter joined the team in this capacity to help curate the narrative from a younger generation of Yup'ik in Quinhagak, many of whom have grown up with the seasonal excavations since the project began in 2009. Crystal compiled a list of questions from her own and her contemporaries' curiosities about the archaeology and queries for their Elders. These questions were then used as the framework to conduct interviews with Elders, culture bearers, traditional craftspeople and archaeologists in Quinhagak. Where relevant, the young people's questions were recorded in both Yup'ik and English and edited into the opening seconds of a selection of soundbites throughout the educational resource. This inclusion of younger voices amongst those of the Elders and archaeologists serves to further represent a sense of self which is closer to the intended user group's own experience and relatability.

Multi-vocality in interpretation is an approach which has demonstrated its effectiveness in promoting a richer and more balanced approach to outreach from archaeological excavation projects in an indigenous context (for Alaskan examples see Steffian et al. 2015; Crowell 2001). However, multi-vocality is not always straightforward, and being inclusive means more than simply inviting everyone to participate. It requires a willingness to adapt and modify the approach to include people in a way which works for them and affords a feeling of ownership over the final collective results.

Watching tasks being carried out and listening to Elders talking are central to Yup'ik ways of learning. Honouring this, soundbite recording ses-

sions were conducted with Quinhagak Elders, culture bearers and members of the community who practice traditional craft skills (Figure 4). These interview sessions followed a flexible structure whereby topics or artefacts for discussion were sketched out beforehand to help focus the session around subjects and stories that captured people's personal interests and preferences. Particularly insightful were responses to some of the questions posed by the younger generation focussing on how master craftspeople first learned their skill, and why they chose to continue honing it over time. Additionally, conversations where Elders recalled details of childhood (for example living in a sod house seasonally or learning to hunt with a bow) or grandparents' practices provided ephemeral glimpses into a way of life not so dissimilar to the people who once lived at Nunalleq. Sound bites from the archaeologists range from general introductions to artefacts and the reconstructed environments to specialist areas of research and scientific analysis, as well as personal reflections on the project and experiences in the field. Thus, local and archaeological narratives intertwine, together strengthening the story of Nunalleq.

Levy and Dawson (2014) observe that archaeologists often struggle to make their research engaging and relevant to the broader communities within which they work, tending towards technical explanations of the past that focus on function, measurements, dates and analysis. They add that, 'In contrast, indigenous peoples and the general public often relate to the past in more personal and emotive ways' (Levy and Dawson 2014). Many user experiences in heritage lack the emotional resonance vital to successful storytelling (Vagnone and Ryan 2016), a constitutive element of heritage narrative-making (Smith and Waterton 2009). Smith and Campbell (2016) argue that to ignore this compelling dimension of heritage is to ignore meaningful engagements with the ways in which people in the present use the past as a contemporary cultural resource (see also Meskell 2010): something which is highly relevant in the context of Quinhagak and Yup'ik cultural identity. Furthermore, they observe that 'emotions are both evaluative and an essential part of reasoning' (Smith and Campbell 2016), which Katifori et al. (2018) insist demonstrates that emotions trigger attention and memory, factors which they assert are critical to learning. In this way, a multi-vocal approach of shared interpretation and outreach where the Elder and community insights represent contemporary parallel narratives to the archaeological interpretation and scientific analysis of the material from the excavation, creates more inclusive, balanced and engaging outreach.



Figure 4. Members of the local community during ‘recording sessions’ for the educational resource (Jimmy Anaver, Pauline Beebe, Willard Church, Emily Cleveland, Annie, Don, John Smith, Larissa Strunk)

Contemporary Connections and Unexpected Engagements

Heritage is often seen as being focussed on fragmented artefacts and ruinous buildings, but for many people, particularly indigenous and descendant communities, it can be intrinsically connected to a sense of identity and social cohesion (Rivkin et al. 2018). At the core of the project’s co-design methodology was the process of frequently opening the floor to different stakeholder groups to engage with, and respond to, the archaeology through their own contemporary endeavours. The following section details three particularly notable case study examples to come out of the educational resource production process: carving a replica, the writing of the Nunalleq *yuraq*, or traditional Yup’ik dance song, and mask painting.

Replicating an Artefact with a Master-Carver

Krupnik (2005) explores the nature of traditional knowledge in the present day, observing that when he first began his work in the 1970s there were many Elders who recalled in great depth and first-hand the ‘old ways of life’ in their communities. Today, he notes, community Elders who are considered experts in local tradition are a generation or more apart from that immediate knowledge. He concludes that for the Elders of today the body of knowledge takes different forms because of the time passed, language change and shifts in technique, technology and environment. This is characteristic of the nature of Elder accounts of the ‘old ways of life’ in Quinhagak, where Elders’ stories related to ephemeral memories from early

childhood and stories passed down from parents and grandparents, often voicing concerns that their knowledge was not what their grandparent's generation would have been. During recording sessions for the educational resource Elders and craftspeople would often refer to ethnographic collections and books from which they forge links between their fragmentary memories, passed-down knowledge and adapted skills. Mindful of this context, the production team shaped a number of the recording sessions around contemporary practices which shared tangible parallels with practices and skills present historically at Nunalleq. This continuity and adaptation of traditional skills and knowledge represents an important connection to a shared past which characterises Yup'ik identity today.

Since its inception the Nunalleq Project has represented a repository of inspiration for local artists like Quinhagak Elder John Smith, who replicates finds from the excavations. John has been a figurehead of the community throughout the archaeology project, paying frequent visits to the excavation site during the field season and spending evenings with the team interpreting the artefacts found that day and telling stories. John's contributions to the interpretation of the archaeological material over the years has been integral to building knowledge about the site and his insights are representative of the processes of shared discovery between the archaeological team and local community. John volunteered to record sound bites for the educational resource, and prior to the interview we agreed upon the structure of the session and the topics he would like to cover. We chose a carved piece of walrus ivory from the 2017 excavation season depicting a seal transforming into an owl which John would replicate using his modern tools and use as a starting point for our discussion.

John's insights included speculative interpretation of how traditional tools would have been used in comparison to his process today, as well as recounting stories of how and why he learned to carve. His commentary presented a blend of in-depth craft knowledge paired with a practice-based approach to interpreting the historical ivory carving production process at Nunalleq. While working on the piece John told stories about learning to carve in the *qasgiq*, men's house, when his grandmother would send him on errands there. The more errands he ran for her the longer he was permitted to stay and watch the men carve. His stories subtly incorporated Yup'ik values and ways of teaching and at the end of the session he urged the younger generation to engage with traditional skills, 'I try to tell them, start doing that, start doing things with your hands. [When] you start doing things with your own hands you'll learn more, not just knowing. Knowledge isn't everything until you learn how to do it.' (John Smith, Quinhagak, July 2018).

Insights like these provide a tangible connection to the archaeology and a shared interest in interpretation of the finds through different means of

engagement: in this case practice-based. Incorporating John's and others' traditional knowledge, expertise as a craftsperson, and anecdotal storytelling is representative of the methodology employed by the wider archaeology project whereby archaeologists and skilled community members explore the artefacts as an interpretative collaboration. Making space for a diversity of narratives and ways of encountering interpretations means that the emerging narratives become a synthesis of academic and traditional practice and ensure that the curation of the archaeological material is relevant to people today. These contemporary engagements with the artefacts, in practice, by artists and other community members, but also through more intangible relations, situate the archaeology in the present and make it meaningful beyond knowledge (cf. Jones 2017). This is further evidenced in the return of traditional dancing to Quinhagak.

How Did You Live? Writing the Nunalleq Dance Song

Drum handles and rims were among the artefacts excavated at Nunalleq along with the vast array of masks relating to *yuraq*, or ceremonial dances, demonstrating how important dancing was to pre-contact Yup'ik culture. Dance has a complex history in many parts of Alaska, its decline largely attributed to discouragement of the practice by missionaries of the Moravian and Russian Orthodox Churches in the late nineteenth and early twentieth centuries (Henkelman and Vitt 1985). However, members of the community in Quinhagak attest that only certain types of shamanic dance practices were frowned upon, while songs which told stories persisted (pers comm Dora Strunk, April 2019). The church themselves have since somewhat reconciled their views on Native spirituality and shamanism, reflecting that early perception of these practices was largely misunderstood, and its meaning was in fact far more nuanced than early missionaries first appreciated (Henkelman and Vitt 1985, see also Barker et al. 2010). As such, presently the church and traditional dance have reached a point where the two can coexist and *yuraq* is celebrated in regional festivals and often taught at school. Today, *yuraq* is an important part of Yup'ik culture, as Theresa Arevgaq John explains, 'Singing and dancing brought people together, allowing them to share their knowledge, maintain the language and help them to carry on their cultural pride and identity' (Barker et al. 2010). She adds that modern songs often focus on the lifestyles of young people today, talking about school, playing basketball or travelling on snow machines. Despite several covert attempts by local youth in the late 1990s,⁵ until 2013, when the Quinhagak dance group was formed at the school, dancing had not been performed publicly in Quinhagak for around a century.



Figure 5. The Quinhagak dance group performing the Nunalleq song at the opening of the Culture Center, Peter Smith wears a walrus mask inspired by the Nunalleq masks and carved especially for the performance by Ben Charles of Bethel

Most children and young people who make up the dance group have grown up with the archaeology project, and many have come to visit the site and participate in the excavation over the summer season. During the 2018 season, an idea formed to compose a new song about the archaeology project. The group would document and reflect upon the writing process, and the results would form part of the community-curated content (in the form of a short film and soundbites) for the educational resource. The creative process for the group included a visit to the excavations and the collection at the Culture Center to explore ideas for lyrics and motions for the song. The group, led by local youths Lonny and Larissa Strunk, Crystal Carter, Carl Nicolai Jr, Charlie Roberts and Peter Smith met nearly every evening for a week to work on the song and rehearse in the run up to a performance at the grand opening of the *Nunalleq Archaeology and Culture Center* (Figure 5). Both Lonny and Charlie had participated in dance groups at college and helped guide the writing of the song in accordance with what they had learned of traditional song structure. The group discussed several initial ideas for the song but returned to the same theme of questions they would ask their ancestors.

Nunalleq, Stories from the Village of Our Ancestors

How did you live?

Chorus

Elagtut Nunallermi

They are digging at Nunalleq
and finding artefacts

Yugtait nataqluki

We have questions for our ancestors

Ciuliamternun apyutkangqertukut

Aya ya aya ya aya ya aya ngiya

Yi iirrii

Verse 1

Qaillun pissullruceci

How did you hunt?

Cakucinek atulallruceci

What things did you use?

Qaillun yuullruceci

How did you live?

Aya ya aya ya aya ya aya ngiya

Yi iirrii

Verse 2

Qaillun yuratullruceci

How did you yuraa?

Canek qanencillruceci

What stories did you tell?

Qaillun yuullruceci

How did you live?

Aya ya aya ya aya ya aya ngiya

Yi iirrii

With characteristic Yup'ik humour the drum solo provided a comedic interlude to the song which saw the group miming the discovery of an object at the excavation they believed was an artefact, but realizing it was an insignificant twig and throwing it on the spoil heap. The final drum solo concludes by celebrating the finding of an artefact.

For many, *yuraa* is the most visible aspect of Yup'ik culture still practiced today (Barker et al. 2010) and in Quinhagak its revival is being championed by a younger generation who are forming their own contemporary relationships with cultural traditions. Songs are unique to each village and although groups are free to dance the songs from other places in their practice sessions, they must seek permission from the village a song originated in or be 'gifted' a song in order to perform them (pers comm Lonny Strunk, April 2019). Consequently, composing new dance songs for the group to add to their repertoire of Quinhagak performance songs is essential practice as the group gains momentum and firmly establishes itself within the region.

The group worked with the author to record their process, and the resulting short film (also available online <https://vimeo.com/306223839>) features within the educational resource in the context of a room within the sod house which houses dance regalia and associated narratives from various sources.

The Nunalleq song incarnates the dynamism of local contemporary engagement with archaeological heritage on multiple levels. The narrative of the excavation is retold from the perspective of Yup'ik young people, who have come to know it as a regular part of their upbringing, and who see the archaeological finds as a means to bridge the past. The song is framing the central question asked to the ancestors 'How did you live?' in much the same way as an archaeologist would frame their interpretations but internalised as a communication between the present and the past. The dance group's performance at the grand opening of the *Nunalleq Culture and Archaeology Center* was a manifestation of the far-reaching effects the Nunalleq project has had on the community and the sense of grounding it provides in their Yup'ik past. The message was reinforced with the use of a dance mask carved especially for the occasion by mask maker Ben Charles from Bethel and inspired by one of the masks in the archaeological collection. In the hands of the Quinhagak dancers, the archaeological material has made an effortless transition from scientific data to living heritage.

Re-imagining the Painted Nunalleq Masks

The wooden masks from Nunalleq were amongst the most popular artefacts at the informal community workshops held at the end of the excavation season each year to showcase the finds. Such masks would often be used for dances and then carefully deposited on the tundra, broken or burned following a performance or festival (Fienup-Riordan and Meade 1996). Many would have been brightly painted but today only traces of red ochre, white clay and charcoal black can be found on the Nunalleq masks (Mossolova and Knecht 2019). The village board were supportive of developing content relating to the masks for the educational resource though this proved a challenging design task because the team were acutely aware of the complex role masks have played in Yup'ik culture both historically and in the context of the revitalization of carving today.

Historically, as with dance tradition, mask carving suffered suppression from early missionaries and social change brought about by devastating epidemics with enormous losses to Yup'ik population (Barker et al. 2010). Consequently, mask making underwent a significant shift from its traditional context within dance practice. Some dancing continued in a recreational capacity albeit without masks, but the act of mask carving itself was relegated to an economic commodity sold in the art and tourism industries. Today, mask carving has become a means of reclaiming cultural identity and contemporary carvers bring their own innovation and meaning to the tradition (Mossolova 2020).

In Quinhagak, Elders talk about masks very much in the context of celebration and storytelling and in the context of subsistence. Discussions

around the artefacts themselves focus on the craftsmanship and skill involved in their production. As well as the excavations, Qanirtuuq Inc and the local school often organize culture days where mask carving workshops are taught, and these are hugely popular. What is more, as noted above, dancing has seen a celebrated cultural revival in Quinhagak in recent years. Due to this growing interest, the team felt it was important to include some form of interactive activity for the masks in the educational resource which engaged with these developing narratives of their craftsmanship and design. Above all the production team were conscious to remain respectful of cultural and local beliefs while ensuring the brief outlined by the village board was met.

As noted by John Smith in his recording session, Elders are encouraging of youngsters actively engaging in their culture by making things with their hands, insisting that physical engagement affords a deeper understanding of the subject. What is more, this activity presented yet another opportunity to avoid ‘the glass case museum’ approach to representing their heritage—favoring design ideas which brought artefacts out of their cabinets into living culture.

With this sentiment in mind, the village board gave the team permission to 3D scan the masks to model digital likenesses of them and create an interface within the educational resource (Figure 6) which allows schoolchildren to experiment with colour pigments evidenced in the archaeological record⁶: to imagine and reconstruct the masks as they may

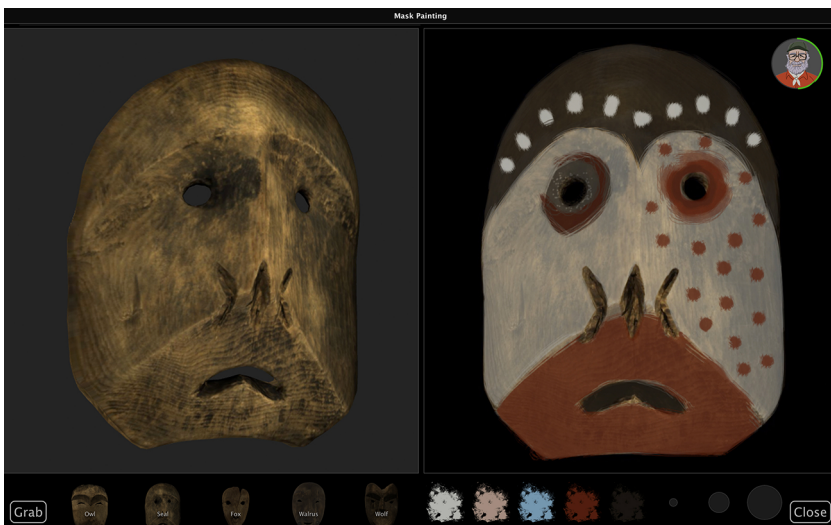


Figure 6. The mask painting interface. Users choose a mask from the selection bar on the left and can paint the 3D model on the right

have once looked when they were brightly painted and adorned to celebrate the animals they represented. The digital paintbrush was designed with a paint splash shape that builds up colour the more is applied, mimicking the traditional paints which were, 'soft and subtle and did not detract from the shape of the mask' (Ray and Blaker 1967). This interface offers a unique experience of exploring archaeological artefacts, although 3D scans are often an outcome from heritage projects, it is rare that these models can be directly interacted with past simple rotation of the object.

For the production team, working out with your own culture is always a challenge which demands close collaboration and a continuous cycle of feedback, and the mask painting interface went through a number of revisions before a final version was agreed upon. Two key elements were incorporated. Firstly, following advice from members of the community and documentary sources the specific Nunalleq masks chosen for this activity represent animals (seal, owl, fox, wolf and walrus), honouring accounts from Elders who explain that these types of masks were often given to children to play with after dances (Fienup-Riordan and Meade 1996). Masks which have been interpreted by culture bearers as representing multiple transforming *yuas* and shamanistic practices were not included in this context. Additionally, the team spoke at length with contemporary mask carvers and culture bearers who were an invaluable source of guidance for this interactive and composed an introductory written piece for the mask painting in the educational resource. This introduction helps to set the respectful tone and context for this activity, drawing upon personal relationships with carving as well as the traditional role of masks. The activity aimed to invoke respect, the addition of colour as a celebration of their former appearance, and a means of hands-on interaction to inspire an interest in traditional skills.

In another village this approach to engaging with these masks may not have been met with encouragement, but for Quinhagak finds from the site have come to represent a node for cultural creativity and a means to explore and re-define a new contemporary relationship with traditional practices.

The mask painting activity and associated artefacts proved to be the most popular section of the educational resource at the school in Quinhagak. In the classroom it inspired children to tell stories of the *yuraq* dances they were learning, revealing a notable sense of ownership amongst the class of their cultural identity through the continuation of tradition.

Considering the pedagogy of curated museum collections Hooper-Greenhill (2000) notes that institutions are becoming increasingly inclusive of multiple histories, complementary narratives and the qualitative experience of their audiences. The mask painting activity, which allows users to paint directly on to the digital masks provides a tangible means of contem-

porary engagement over and above rudimentary observation. Children were free to experiment with some of the more traditional styles of mask painting from historic references, though most chose to paint their own designs, exploring the three-dimensional nature of the artefact by responding to the carved lines and shapes within the form of the mask. As Mossolova (2020) observes, without access to a generation of Elders and culture bearers who would traditionally pass on mask making skills, Alaska Native carvers today are turning to ethnographic books, art catalogues and museum collections to learn by replicating historic examples. As such, archaeological collections such as at Nunalleq represent a means for contemporary artists to explore materials, technique and meaning. The mask painting represents a digital manifestation of the type of engagement which has come to characterise the hands-on approach to outreach which has organically developed over the course of the Nunalleq Project as a whole (cf. Hillerdal et al. 2019). Yup'ik is a living culture where connection between the past and present is viewed as a continuation rather than a differentiation. As such representation and outreach should work towards better reflecting this, where possible nurturing active participation as opposed to passive observation.

In the Classroom

After the completion of the education resource in April 2019, evaluation sessions were conducted with teachers and students from elementary to high school age at *Kuinerrarmiut Elitnaurviat*, the school in Quinhagak. Evaluating creative outreach work across a large test-group in a quantifiable manner is challenging as feedback questionnaires can influence and lead responses. To avoid this, feedback was framed around a few broad questions which aimed to establish where interest was most stimulated for the users, and how teaching staff envisioned using the resource in the school. Students were posed the questions: 'What was your favourite part of the education pack?' and 'Was there anything you would like to know more about?' As noted earlier, the mask painting and dance related artefacts and material were unequivocally the most popular element of the education pack across the age groups. The season wheel, which allows children to click on different animals and activities as they appear through the year to hear about faunal evidence on site from the archaeologists, traditional hunting practices from Elders, and contemporary parallels today from younger members of the community, came a close second (Figure 7). Without too much speculation it is possible to deduce that the user group engaged most with the archaeological material they related closest to; dance and subsistence. Additionally, verbal feedback from children exploring the reconstruction of the sod house and artefacts 'in context', as well as the

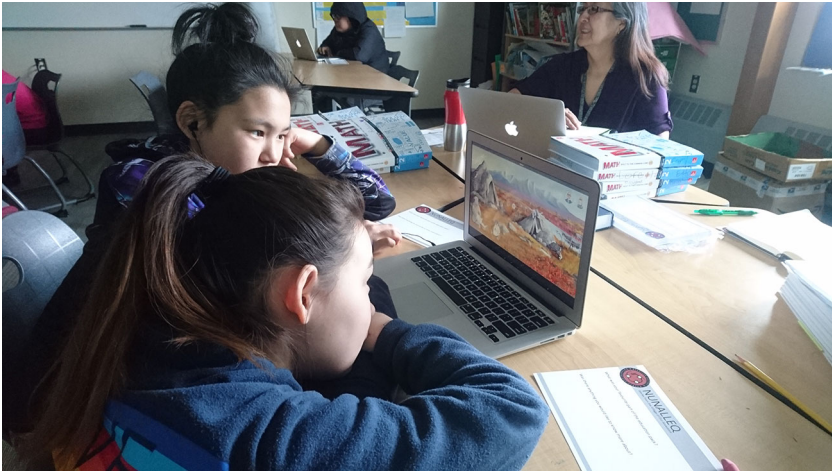


Figure 7. Children using the education pack in the classroom and exploring the Tundra page which contains the season wheel interactive

sod house construction diagram (which builds from the excavated trench as users move a slider) indicated that they were highly engaged with a representation of a structure many said they could not previously visualise or did not fully understand.

Teaching staff were asked: ‘What did you think worked well?’, ‘What could we improve?’ and ‘How do you imagine the education pack being used in your lessons?’ To them, hearing from Elders was a huge positive, as was the level of interaction which teachers observed held the attention of children for the whole 50-min lesson. As anticipated a number of teachers commented that they would have liked to hear the Elders speak in Yup’ik more. Several different subjects were identified as relevant where teachers planned to incorporate the Nunalleq educational resource. These included expected responses such as history, science and art, in addition to unexpected relevance to social studies, *Yugtun* language, Yup’ik person life skills and Yup’ik health.

The Nunalleq Educational Resource was produced as an engaging and educational piece of outreach from the archaeology project which could be used in schools, but it was not developed as a direct part of the curriculum. As such it was reassuring to hear that teachers felt they could integrate the resource in their classrooms immediately without additional work. While previous examples of archaeologically themed curriculum have been text and classroom activity based (see for example *Project Archaeology!* Partnow et al. 2014) the Nunalleq educational resource provided a different type of engagement with the archaeological narrative. Artefacts and con-

cepts were made tangible through interactive models and diagrams while scientific and traditional knowledge, and contemporary engagements were articulated through audio narratives and mixed media. Ch'ng (2009, 459) asserts that the appeal of digital media can be attributed to a sense of presence and psychological immersion in a virtual scene which is enhanced through the addition of audio and mechanisms for interaction.

Reflecting on the Educational Resource

Museums, and by extension wider programmes of public outreach, can be creative spaces which narrate stories of the past and project heritage into the future (Bailey 2018). In adopting a methodology of co-design and collaboration with the local community to produce the Nunalleq educational resource, the project created a framework to gather multiple narratives around a common theme and a shared goal. 17 community members and Yup'ik culture bearers in addition to 13 archaeologists and volunteers lent their voices to the educational resource. A further 34 Yup'ik community members, culture bearers and heritage professionals weighed into help guide the design, content and overall curation of the educational resource over the course of this 2.5 year project. Vagnone and Ryan (2016) agree that outreach and engagement with the public must become more central to community life by inviting people to actively engage as cultural participants, not passive consumers. Similarly, Vaughn (2008) surmises that in order to engage with target audiences heritage outreach must be responsive to the societal context and communities within which it is framed today. Like many indigenous communities across the world, Yup'ik people are still dealing with the effects of historic trauma from centuries of colonisation, exploitation and misrepresentation (Hughes 2017; Wexler 2014). Although these sensitive issues are not directly vocalised as part of the narrative in the educational resource, it is nevertheless essential to evaluate the work with an awareness of its social and cultural context (Fyfe and Law 1988), as these ongoing issues surrounding authenticity, misrepresentation and cultural inaccuracy are often amplified in the context of visual culture and popular media (Schlag 2018). Community participation and initiative in the design, curation and production of the Nunalleq educational resource is impactful in that through this design process the project begins to negotiate the spaces which historically have been occupied solely by colonisers and academics: the lone voices of outsiders and observers who monopolise narratives on the past. To control knowledge is to control power (Mills 2003), thus by the same logic for outsiders to monologue a narrative on the past without making space for indigenous, or local, voices would be detrimental to diversifying the field of archaeological practice

and progressing our notions of balanced representation, curation and display.

Jones argues that evaluations of community agency and engagement with heritage tend to focus on historic and scientific values, and consequently 'often fail to capture the dynamic, iterative and embodied nature of people's relationships with the historic environment in the present' (2017). Hooper-Greenhill echoes this notion, claiming that, 'Culture is not an autonomous realm of words, things, beliefs and values. It is not an objective body of facts to be transmitted to passive receivers. It is lived and experienced; it is about producing representations, creating versions, taking a position, and arguing a point of view' (2000). She emphasises that, as a consequence, the present is inherently shaped by the past and as a result the interpretation and curation of objects and knowledge in the past affects how they are contextualised today. She characterises knowledge as being both cultural and historical, involving history and tradition. Clifford observes that many indigenous groups faced with a history of societal disruption have adapted and recombined remnants of an interrupted way of life, 'They reach back selectively to deep rooted, adaptive traditions: creating new pathways in a complex postmodernity' (2013). For the Quinhagak community, the past is not a place which is independent from the present-day. Increasingly, especially for the younger generation, the past is becoming a space for new engagements with their heritage which they are continually transforming and re-imagining in the present.

In the context of visual cultural heritage Balm (2016) observes that images are meeting places where meaning is negotiated and constructed, and interpretation and sense-making is about reading in not reading from. In Quinhagak, art practice and creative expression act as a conduit for contemporary engagements with the past and represent a tangible medium for the community to engage with the archaeology and for the archaeologists to connect with contemporary and traditional culture. As such, the community were afforded a platform to explore remembered and emerging connections to a way of life exemplified by the archaeology, all the while reinforcing positive cultural identities. Likewise, the archaeological narratives benefitted from interactions with more intangible aspects of cultural heritage which often remain largely invisible in the archaeological record. To apply these narratives directly to the archaeological interpretation could be construed as subjective conjecture, but by firmly contextualising the source from which each narrative emerges by identifying voices of elders, the community and the archaeologists within the interface means that these multi-vocal and varied narratives can coexist in the same space without stifling each other or competing for validity or attention. Each contribution is powerful in its own right and authentic within its context. The result is an educational resource that is far from an anonymous textbook but

equally informative, accessible and relevant to its intended audience. A collaborative approach was crucial in achieving this, and in empowering and inspiring children to take ownership of their history and heritage.

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Compliance with Ethical Standards

Conflict of interest We have no conflicts of interest to disclose.

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Notes

1. Large areas of Alaska are still un-investigated by archaeologists, and the Nunalleq project was the first large-scale archaeological excavation to be undertaken in the Yup'ik region. In addition, despite being common practice in much of American archaeology today, community-based projects in mainland Alaska are still rare.
2. More robust C14 dating and modelling are not yet done for the earliest occupation phase, but the archaeological stratigraphy suggests an extensive period of occupation, which might push the initial dating of this phase further back in time.
3. In August 2019 the Educational Resource was distributed to the 27 schools within the Lower Kuskokwim School District, 12 schools on Kodiak Island and a wide selection of schools in Alaska engaging with Yup'ik culture as part of their curriculum. The resource was also distributed to a selection of museums and institutions state-wide and within the lower 48.
4. Demonstrated in a notable earlier project between the University of Dundee's 3DVisLab and University of Glasgow SERF Project which prototyped using the technology for heritage-based applications, see www.seriousanimation.com/hillforts/.
5. *Pers comm.* Jacqueline Cleveland, April 2019. Jacqueline recounted that in around 1997/98 her and her sister learned a handful of dance songs at summer school in Mount Edgecumbe, Sitka, AK and returned home to Quinhagak where they performed to a small group of relatives and friends. She added that the two had attempted

- to initiate a dance troupe in the village (often practicing in secret on the nearby beach) which was quickly disbanded by a few disapproving conservative Elders.
6. With the addition of blue vivianite which is evidenced in ethnographic examples (see examples from Ray and Blaker 1967; Fitzhugh and Crowell 1988).

References

- Andrew, F. (2008). *Paitarkiutenka, My Legacy to You* (Transcribed and translated by A. Rearden, M. Meade and edited by A. Fienup-Riordan). Anchorage Museum Association.
- Bailey, C. (2018). *Museums and Creative Industries: Case studies from across Europe*. NEMO Working Group.
- Balm, R. (2016). *Archaeology's visual culture: Digging and desire*. London and New York: Routledge.
- Barker, J. H., Fienup-Riordan, A., & John, T. A. (2010). *Yup'it Yuraryarait: Yup'ik ways of dancing*. Fairbanks: University of Alaska Press.
- Ch'ng, E. (2009). Experiential archaeology: Is virtual time travel possible? *Journal of Cultural Heritage*, 10, 458–470.
- Clifford, J. (2013). *Returns: Becoming indigenous in the twenty-first century*. Cambridge: Harvard University Press.
- Crowell, A. (2001). *Looking both ways: Heritage and identity of the Alutiiq People*. Chicago: University of Chicago Press.
- Electron. (2015). Retrieved April 8, 2020, from <https://electronjs.org>.
- Fienup-Riordan, A. (2007). *Yuungnaqpiallerput, The Way We Genuinely Live: Masterworks of Yup'ik Science and Survival*. Anchorage: Anchorage Museum Association.
- Fienup-Riordan, A. (2010). *Hunting tradition in a changing world. Yup'ik Lives in Alaska today*. New Brunswick, New Jersey, and London: Rutgers University Press.
- Fienup-Riordan, A., & Meade, M. (1996). *The living tradition of Yup'ik Masks. Agayuliyararput: Our way of making prayer*. Seattle and London: University of Washington Press.
- Fienup-Riordan, A., & Rearden, A. (2016). *Anguyiim Nalliini/Time of Warring: The History of the Bow and Arrow Wars in Southwest Alaska*. Anchorage: University of Alaska Press.
- Fienup-Riordan, A., Rearden, A., & Knecht, M. (2015). Irr'inarqellriit/amazing things: Quinhagak elders reflect on their past. *Alaska Journal of Anthropology*, 13 (2), 37–70.

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- Fitzhugh, W. W., & Crowell, A. (1988). *Crossroads of continents: Cultures of Siberia and Alaska*. Washington: Smithsonian Institution Press.
- Fyfe, G., & Law, J. (1988). Introduction: On the invisibility of the visual. In G. Fyfe & J. Law (Eds.), *Picturing power* (pp. 1–14). New York: Routledge.
- Henkelman, J., & Vitt, K. H. (1985). *The History of the Alaska Moravian Church, 1885–1985: Harmonious to Dwell*. Anchorage: Alaska Historical Commission.
- Hillerdal, C. (2017a). Integrating the past in the present: Archaeology as part of living Yup'ik heritage. In C. Hillerdal, A. Karlström, & C.-G. Ojala (Eds.), *Archaeologies of “Us” and “Them”: Debating history, heritage and indigeneity* (pp. 64–79). London and New York: Routledge.
- Hillerdal, C. (2017b). Politics of indigeneity. In C. Hillerdal, A. Karlström, & C.-G. Ojala (Eds.), *Archaeologies of “Us” and “Them”: Debating history, heritage and indigeneity* (pp. 15–17). London and New York: Routledge.
- Hillerdal, C. (2018). Words apart. Archaeology, indigenous communities and the power of definition. In A. Ekblom, C. Isendahl, & K.-J. Lindholm (Eds.), *The Resilience of heritage. Cultivating a future of the past. Essays in honour of Professor Paul J.J. Sinclair* (pp. 363–392). Uppsala: Uppsala University.
- Hillerdal, C., Knecht, R., & Jones, W. (2019). Nunalleq: Archaeology, climate change and community engagement in a Yup'ik village. *Arctic Anthropology*, 56 (1), 4–17.
- Hooper-Greenhill, E. (2000). *Museums and the interpretation of visual culture*. London: Routledge.
- How Did You Live? (2018). Retrieved April 8, 2020, from <https://vimeo.com/306223839>.
- Hughs, G. (2017). Tradigital knowledge? Indigenous video games, copyright, and the protection of traditional knowledge. In A. A. A. Mol, C. E. Ariese-Vandemeulebroucke, K. H. J. Broom, & A. Politopoulos (Eds.), *The interactive past: Archaeology, heritage and video games* (pp. 33–51). Leiden: Sidestone Press.
- Jones, S. (2017). Wrestling with the social value of heritage: Problems, dilemmas and opportunities. *Journal of Community Archaeology and Heritage*, 4(1), 21–37.
- Katifori, A., Roussou, M., Perry, S., Cignoni, P., Malomo, L., Palma, G., et al. (2018). The EMOTIVE Project: Emotive virtual cultural experiences through personalized storytelling. In A. Antoniou & M. Wallace (Eds.), *Proceedings of the workshop on cultural informatics*, November 3, 2018, Nicosia, Cyprus.
- Kawagley, O. (1990). Yup'ik ways of knowing. *Canadian Journal of Native Education*, 17(2), 5–17.
- Knecht, R., & Jones, W. (2020). 'The Old Village': Yup'ik pre-contact archaeology and community-based research at the Nunalleq site, Quinhagak, Alaska. *Études/Inuit/Studies*. Quebec City: Laval University. **(Forthcoming)**

Nunalleq, Stories from the Village of Our Ancestors

- Krupnik, I. (2005). When our words are put to paper. Heritage documentation and reversing knowledge shift in the Bering Strait region. *Études/Inuit/Studies*, 29(1–2), 67–90.
- Ledger, P. M., Forbes, V., Masson-Maclean, E., Hillerdal, C., Hamilton, W. D., McManus-Fry, E., et al. (2018). Three generations under one roof? Bayesian modelling of radiocarbon data from Nunalleq, Yukon-Kuskokwim Delta, Alaska. *American Antiquity*, 83(3), 505–524.
- Levy, R., & Dawson, P. (2014). Interactive worlds as educational tools for understanding Arctic life. In K. Kee (Ed.), *Pastplay: Teaching and learning history with technology* (pp. 66–86). Ann Arbor: University of Michigan Press.
- Masson-MacLean, E., Houmard, C., Knecht, R., Sidéra, I., Dobney, K., & Britton, K. (2019). Pre-contact adaptations to the little ice age in Southwest Alaska: New evidence from the Nunalleq site. *Quaternary International*. <https://doi.org/10.1016/j.quaint.2019.05.003>.
- Meskill, L. (2010). Ethnographic interventions. In J. Lyndon & U. Z. Rizi (Eds.), *Handbook of postcolonial archaeology* (pp. 445–457). Walnut Creek: Left Coast Press.
- Mills, S. (2003). Gender and colonial space. In R. Lewis & S. Mills (Eds.), *Feminist postcolonial theory* (pp. 692–719). New York: Routledge.
- Mosolova, A. (2020). Innovation and healing in contemporary Yup'ik mask making. *Anthropologica*. Toronto: University of Toronto Press. (**Forthcoming**)
- Mosolova, A., & Knecht, R. (2019). Bridging past and present: A study of pre-contact Yup'ik masks from the Nunalleq site, Alaska. *Arctic Anthropology*, 56(1), 18–38.
- Mustonen, T., & Lehtinen, A. (2013). Arctic Earthviews: Cyclic passing on knowledge among the indigenous communities of the Eurasian North. *Sibirica: the Journal of Siberian Studies*, 12(1), 39–55.
- Partnow, P. H., Jensen, A., & Sheehan, G. (2014). *Project archaeology! Investigating a North Slope Ivruulik*. Bozeman: Montana State University.
- Ray, D. J., & Blaker, A. A. (1967). *Eskimo masks: Art and ceremony*. Seattle: University of Washington Press.
- Rearden, A., & Fienup-Riordan, A. (2013). *Erinaput Unguvaniartut: So our voices will live: Quinagak history and oral traditions*. Fairbanks: Alaska Native Language Centre.
- Rearden, A., & Fienup-Riordan, A. (2016). *Ciulirnerunak Yuuyaquanak/Do not live without an elder: The subsistence way of life in Southwest Alaska*. Fairbanks: University of Alaska Press.
- Rivkin, I., Lopez, E. D. S., Trimble, J. E., Johnson, S., Orr, E., & Quaintance, T. (2018). Cultural values, coping, and hope in Yup'ik communities facing rapid cultural change. *Journal of Community Psychology*, 47, 611–627.

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- Roderick, L. (Ed.). (2010). *Alaska native cultures and issues: Responses to frequently asked questions*. Fairbanks: University of Alaska Press.
- Schlag, J. (2018). Surviving the colonial blizzard: The Alaskan Native game *Never Alone* as a walkthrough in cultural resistance. In K. N. McDaniel (Ed.), *Virtual dark tourism. Ghost roads* (pp. 247–264). Switzerland: Palgrave Macmillan.
- Smith, L. T. (2012). *Decolonizing methodologies: Research and indigenous peoples*. London: Zed Books.
- Smith, L., & Campbell, G. (2016). The elephant in the room: Heritage, affect and emotion. In W. Logan, M. N. Craith, & U. Kockel (Eds.), *A companion to heritage studies* (pp. 443–460). Hoboken: Wiley.
- Smith, L., & Waterton, E. (2009). *Heritage, communities and archaeology*. London: Duckworth.
- Steffian, A., Leist, M., Haakanson, S., & Saltonstall, P. (2015). *Kal'unek from Karluk: Kodiak Alutiiq history and the archaeology of the Karluk one village site*. Fairbanks: University of Alaska Press.
- Tennant, E., & Bitar, J. (1995). *Yupik lore: Oral traditions of an Eskimo People*. Lower Kuskokwim School District.
- The Nunalleq Educational Resource. (2019). Retrieved April 8, 2020, from www.seriousanimation.com/nunalleq/.
- The SERF Hillforts Resource. (2017). Retrieved April 8, 2020, from www.seriousanimation.com/hillforts/.
- Vagnone, F., & Ryan, D. (2016). *Anarchist's guide to historic house museums*. Walnut Creek: Left Coast Press.
- Vaughn, J. (2008). Introduction: The Call for a National Conversation. *Forum Journal, America's Historic Sites at a Crossroads*, 22(3), 5.
- Watterson, A., Anderson, J., & Baxter, K. (2020). Designing digital engagements: Approaches to creative practice and adaptable programming for archaeological visualisation. In *EVA London 2020: Electronic visualisation and the arts. Proceedings of a conference held in London 16th–18th November*. BCS, The Chartered Institute for IT.
- Wexler, L. (2014). Looking across three generations of Alaska natives to explore how culture fosters indigenous resilience. *Transcultural Psychiatry*, 51(1), 73–92.
- Wyman, L. T. (2009). Youth, linguistic ecology and language endangerment: A Yup'ik example. *Journal of Language, Identity & Education*, 8(5), 335–349.