Digitalisation of crafts

Comparative approaches to Arctic fur

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Abstract: *Efforts to digitally engage with indigenous source communities and craftspeople are many and diverse. This paper has as its starting point a comparison between two such digital engagements, both celebrations of Arctic animal fur clothing, yet each at seemingly opposite ends of a continuum of possible digital interfaces.* Skinddragter Online *and* Mittimatalik Arnait Miqsuqtuit Collective *were both launched the same year, 2015, in Copenhagen and Mittimatalik, Nunavut, Canada respectively. By comparing each with the other, our ambition is to illuminate some of the curatorial choices involved in the making of such digital platforms, and the consequences they have in terms of wider visibility, audiences reached, knowledge included, and collaborative engagements invited. Postcolonial critique can come at the expense of general outreach, conversations between designated experts can be difficult to make equal. Technological sophistication can be challenged by the digital divide. Attention to issues of cultural appropriation is a constant. Yet, driving these initiatives is the need to maintain a digital diversity in online and offline spaces.*

Keywords: Digital engagements, postcolonial, Arctic, indigenous, fur sewing.

This article compares two approaches to the digitisation of circumpolar indigenous crafts. One, *Skinddragter Online* was initiated by the National Museum of Denmark in Copenhagen. The other, the *Mittimatalik Arnait Miqsuqtuit Collective*[1] (MAMC) originated as part of a larger digital heritage project run out of York University, Canada entitled *Mobilising Inuit Cultural Heritage.*[2] Both projects set out to engage indigenous craftspeople, in an online showcase of Arctic animal skin and fur garments, however, the methodological practices and final products

differed significantly. *Skinddragter Online*[3] was initiated by Denmark's National museum senior conservator Anne Lisbeth Schmidt and launched in the spring of 2015 alongside the exhibition *Fur and Death (Pels og Død)*. Making use of cutting-edge science and database technology, this initiative aimed to bring new knowledge of Arctic fur garments to a diverse international and multicultural audience. MAMC on the other hand, initiated that same year, was low-cost, using accessible and user-friendly recording technologies, and began as more of a local experiment in

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collaborative ethnography than a platform. Both projects were, in their different ways, uniquely innovative and both were driven by the desire to celebrate and promote the intricate artistry of Inuit animal skin sewing.

In what follows, we draw on recent theoretical approaches to digital heritage to compare and contrast these two platforms, highlighting significant issues that arise is ethnographic efforts to digitally archive and exhibit indigenous crafts. Our suggestion in that, in terms of technological engagements and designated audiences, *Skinddragter Online* and MAMC exist at opposite ends of a continuum of possible digital interfaces. Each makes use of different forms of knowledge and expertise thereby leading to distinctive forms of research, collaboration and audience engagement. We highlight these differences to raise larger issues of curatorial choice and the role of digital interfaces in cultural documentation, revitalisation and public education.

Collections, technology, and politics

Digital technologies have been heralded for their ability to provide new form of access to cultural heritage for source communities (e.g. Ngata *et al.* 2012; Tythacott & Arvanitis 2014; Basu 2015). Anthropologists, museum staff, and indigenous stakeholders have credited the digital revolution with having fostered and facilitated indigenous political struggles (e.g. Castells 1996; Gledhill 2008). Indeed, the use of digital methods in localised processes of cultural revitalisation, through digital archiving and exhibition projects, can bring unprecedented amounts of knowledge and information from different sources to be layered together to establish new wholes (for example, see Appelt *et al.* this issue). Museum

archives and collections invite new dialogues across epistemological boundaries and can be seen as bringing museum institutions and source communities together on more equal ground than in the past (Peers & Brown 2003; Basu 2015).

We can enthuse about the possibilities of what has been called "digital repatriation" – over the potentials that digital technologies hold to inspire and inform projects of indigenous cultural representation and regeneration. Yet at the same time, digital attempts to redress colonial museum practices bring with them new dilemmas. Digital platforms easily embody implicit naturalised understandings of knowledge, expertise, and power. As scholars warn, the term, "digital repatriation" can easily become a euphemism, at worst it can become a new form of colonisation (Ess & Jones 2004; Geismar 2013).

Most digital solutions have more straightforward ambitions, such as the museum catalogue. Such online catalogues are professionally maintained, they are relatively inexpensive to make, and generally available in at least one commonly known language. Information offered is standardised and proofed. They can reach numerous audiences, providing them with a minimum of what a museum considers significant information. Standardisations, hence, could increase availability and democratise dissemination. Larger standardised platforms can also easily link their catalogues to other museum databases, nationally, in larger units such as Digitaltmuseum.no, or internationally in such databases as Europeana (Wold & Ween this issue). Generally, with the larger digital solutions, the drive to expand and connect to make all-encompassing solutions is exciting but also potentially problematic. There are issues of ownership, as collecting and connecting

may in themselves be acts of appropriation. Questions arise as to exactly how a story might be told; or more generally, who is acting on behalf of whom and for what purpose as well as what conversations can be initiated and by whom (Boast 2011; Boast & Enote 2013; Geismar 2013).

One could also argue that standardisation of national museum exhibitions for larger audiences denies the possibility of more specialised or practical knowledge exchanges occurring, thus risking such projects becoming sites of disjuncture for people in indigenous communities rather than sites of engagement (Myers 1994). Questions arise as to exactly how a story might be told, or more generally, who is acting on behalf of whom, and for what purpose, what conversations can be initiated and by whom (Boast 2011; Boast & Enote 2013; Geismar 2013).

Culturally specific approaches to online curatorial practice can emerge in the framing, ordering, and classifying artefacts, conservation techniques, storytelling customs, the representation of aesthetic traditions and attention to cultural values and etiquette regarding Western modernist classificatory systems that favour clear distinctions between persons and things, the natural and supernatural, or the tangible and intangible. Such Western epistemologies remain prominent in online museum spaces. Artefacts and their biographies become ordered according to existing categories and descriptions drawn from an established universal reference system. The adoption of such reference systems inhibits museum efforts to engage indigenous communities as equal partners in knowledge production (Verran & Christie 2007; Verran *et al.* 2007; and Srinivasan 2009a; 2009b). As is obvious, databases can never be more than what locally could be experienced as ad hoc

"snapshots of an otherwise interconnected reality" (Geismar 2013:258).

Particular kinds of information could be seen as missing from this process of knowledge exchange, as the communicative channels required must be consistent with source communities' values, epistemologies, and worldviews (Verran & Christie 2007; Verran *et al.* 2007, Srinivasan 2009a; 2009b). The specific cultural values and communicative preferences of standardised solutions (Srinivasan *et al.* 2009a; 2009b) could potentially inhibit equal partnership, if digital approaches are at odds with values and worldviews of source communities (Verran & Christie 2007; Lyons *et al.* 2016). But, we want to keep our optimism; digital collaborations *could* also ideally transgress the divide between scientific and local knowledge and hence destabilise existing knowledge hierarchies and produce new knowledge of value to *all* parties.

Then there are the heralded postcolonial initiatives, designed to bring together collections from particular regions such as in the Reciprocal Research Network,[4] or the Sierra Leone Heritage project.[5] Several digital initiatives described in this special issue position themselves in a similar postcolonial category, but from very different approaches. To return to our comparison, outside the box of standardised initiatives: *Skinddragter Online* and MAMC, both have pros and cons. One, as an expansive digital initiative driven by a powerful museum, the other a smaller, more collaborative or "grassroots" one. Technology-driven, far reaching digitisation projects such as Skinddragter Online, can establish connections between different knowledge bases, connecting GIS maps with artefacts, local oral histories, archive documents, photographs and film (Srinivasan *et al.* 2009a; 2009b). Such platforms often involve interdisciplinary

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collaborations to produce knowledge aimed at a wide range of viewing publics. MAMC, on the other hand, entails a more narrow range of information, other collaborations, and focus their efforts on a more homogenous audience group.

Skinddragter Online vs MAMC

In 2018, three years after its launch, *Skinddragter Online* remains on the front page of the Danish national museum's main webpage under "Digital Collections". Closely associated with the national museum's long-lasting UTIMUT project – that repatriated as many as 35,000 objects to the Greenland National Museum and Archive in Nuuk (see Gabriel & Dahl 2008) – the database has been promoted and upheld as a site for indigenous knowledge transmission and digital repatriation. *Skinddragter Online* exhibits unique historic fur garments manufactured and worn by circumpolar indigenous peoples in Greenland, North America, Sápmi, and Siberia. Online galleries are not restricted to objects held in Danish collections, with signature garments also made part of the digital displays through partnerships with other museums, such as the Cultural History Museum at the University of Oslo, Norway.[6] Works are displayed with an attention to aesthetics and art of sewing, with crisp clear studio-style photographic images and detailed descriptions. By making images available to viewers in a much higher resolution than thumbnail images found in many standard museum databases, *Skinddragter Online* invites attention to the intricacies of the garments, such as the direction of the fur in each pattern piece, how they are sewn together or the types of stiches employed. Project leader Anne Lisbeth Schmidt works with other staff members (Jensen, Schmidt & Hjelm Petersen 2012) to include photogrammetry images of some of the garments, offering online visitors to the site a mechanism through which to turn the piece around to observe it from all angles. The use of X-ray technology to identify stitches is also showcased, along with 3D technology (a mobile laser instrument called a Faro arm) that by tracing seams create a 3D model of a garment, which, in turn, can be broken down into 2D patterns. Finally, collaborations with the Natural History Museum in Copenhagen have produced mass spectrometric protein sequencing of some of the fur items, allowing for accurate identification of the source animals from which the garments were made. These features are however not included for all items. Budgetary restrictions have limited these specialised features to a small number of garments. Nonetheless, these high resolution camera, x-ray, photogrammetry, and 3-D laser technologies are important because they exemplifying the *possibilities* of such a high-end database, involving such state-of-the-art technologies and such synergetic interdisciplinary and cross-institutional scientific collaborations.

With its focus on technological prospects and visions, *Skinddragter Online* has gained recognition for its ability to open channels of knowledge transfer across disciplinary boundaries and between museum, the general public, and Arctic communities. The database is available in both English and Danish languages, and Schmidt also aspires to include Inuktitut for Canadian Inuit users. As more museums have joined as partners, contributing images of their Arctic garments to the database, it is envisioned that other languages could be added, with the objective, in the end, that all Arctic regions and their respective fur garments could be represented. The scientific and ethnographic knowledge

Fig. 1. Screenshot of the website Skinddragter Online.

produced in the course of this interdisciplinary and international collaboration has, not surprisingly, received substantial interest in Denmark and further afield resulting in several academic publications (Jensen *et al.* 2012; Gulløv *et al.* 2013; Sinding 2015). This celebration of skin sewing alongside the technologies enabling their study illustrates new possibilities for collections work. In so doing, museums with limited funds can not only mobilise new audiences but also spearhead museum fundraising drives to ensure the perpetuation of the database.

Envisioned first and foremost as a digital documenting and archiving project attending to local Inuit training needs, the work undertaken in the Nunavut settlement of Mittimatalik (Pond Inlet) (population1800) by Mittimatalik Arnait Miqsuqtuit Collective (MAMC) finds itself on a very different end of the continuum of digital interfaces, both

in terms of technological focus and local engagement. While *Skinddragter Online* makes use of high-tech solutions and far-reaching academic and non-academic collaborations to produce an end product of ambitious and substantial artefact morphology, MAMC is instead more locally oriented, improvisational, with an aim to foster collaborative knowledge production on a number of levels (Verran & Christie 2007; Wachowich 2018). Even its connections with museum objects are more indirect. Rather than engaging with museum artefacts or final products in themselves, MAMC focuses on processes of sealskin sewing skills acquisition and transfer. There are strong continuities between the clothes made in Mittimatalik today and artefacts found in major ethnographic museum Arctic collections, but the garments and crafts produced today are also shaped by local access to materials and changes in fashion. MAMC

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was established as part of a larger international collaborative research project entitled "Mobilising Inuit Cultural Heritage" (MICH)[7] which aspired to bring together Inuit and non-Inuit researchers, artists, and stakeholders by supporting research, creation, and curatorial activities related to a wide variety of Inuit cultural practices, with the intention of advancing Northern community access to digital information and communication technologies.[8] In line with the larger project's explicit focus on issues of sustainability and cultural revitalisation, from the onset MAMC set out to explore Inuit women's aesthetic practices, maintaining itself primarily as a local conversation, articulating Mittimatalingmiut Inuit needs and cultural protocol. With its explicitly egalitarian structure, MAMC attempts to recognize equally the diverse set of knowledge and skills that the members of the collective bring together.

MAMC emerged out of an extended series of discussions between principal investigator anthropologist Nancy Wachowich and her long-term friends and MAMC co-founders Leah Kippomee and Sheila Katsak. Wachowich first did fieldwork in Mittimatalik (Pond Inlet) in the early 1990s, collaborating in the autobiographical life-history recordings of three generations of Inuit women from one family. The resultant book (Wachowich 1999) has become a valued contribution to Inuit ethnography and local history and established long-lasting relations that, 15 years after its publication, would enable the coming together of the collective. Once the planning and execution of the recording sessions was underway, Wachowich brought Gro Ween in as a second anthropologist and camera aid for two of the four recording sessions. The first, February 2015, session involved two mother/daughter teams: Sheila and Skylar Katsak

and Leah and Amy Kippomee, along with Wachowich and Ween. A Romanian born UK-based video editor Melisa Costinea joined the team later on that spring. Between 2015 and 2018, the collective has grown to upwards of 25 members, with membership shifting from year to year in accordance with individual women's work and time commitments.

The stated purpose of MAMC is to create a digital archive of sealskin-processing and sewing skills to act as a resource for apprentice seamstresses, primarily in Nunavut. The development of high-resolution mobile phone camera technology enabled Inuit seamstresses and youth apprentices with the technological means to collaborate together in recording images and clips as "master classes" to exhibit online. The sewing/recording sessions that ensued resonated with those traditionally held in living rooms, tents, sodhouses and snow-houses of the past, but with the camera they took a slightly different format. In these often-busy domestic spaces, children learn from observing their parents and grandparents and participating in the creative process. Inuit women's sewing traditionally takes place amidst all kinds of other happenings in busy households: children crying or playing, family members coming by, or food being prepared. And so it was the case with the MAMC recording sessions documenting this skill. The camera was a tool alongside the scraper, the ulu, the needle and threat. MAMC's ambitions were not only to enable the revitalisation and learning of sealskin sewing, but also to foster a much more holistic approach to learning, where the camera and eventual archive was only one impetus for the event taking place. Almost all of the sessions took place exclusively in Inuktut, and were not translated for outside audiences.

For the anthropologists involved, the process

of witnessing and filming this set of skills was a starting point for new conversations about a wide range of themes from human-animal relations to aesthetic sensibilities, to intergenerational communication between women, to culturally-specific forms of learning. The documentation process was also an explicit experiment in how to digitally engage in a postcolonial Arctic, at a time when collaborative research and indigenising the internet is not just an ideal, but a requirement.

To this end, MAMC considered it's work largely as a collective endeavour and shared creative event for all participants. Cultural protocol dictates that one's elders are not directed to or instructed. Thus, it was left to each seamstress to choose what would be filmed. This decision was based on materials at their immediate disposal and what the seamstress envisioned were the training needs of the younger generation.

MAMC has had four recording sessions over a four-year period, each with a different shape and form. The inaugural recording session, filmed in the winter of 2015 and dubbed MAMC 1.0 involved three seamstresses: Ruth Sangoya, Paomee Komangapik, and Koopa Kippomee. Ruth Sangoya documented on film her instruction for Sheila Katsak and Sheila's 14-year-old daughter Skylar on how to make sealskin kamiks,[9] with the three of them going over the details of skin preparation and the different kinds of stitches. Ruth Sangoya's neighbour, Koopa Kippomee, set about instead to demonstrate and explain the long and complicated series of processes used to transform a raw hide from a baby seal to the much valued dehaired, freeze-dried, white sealskin called "naluaq". And, octogenarian Paomee Komangapik recorded the sewing of mittens of the kind that she sells to workers at the local mine. Cameras of different types used

for each of these sessions were passed between women in the room depending on the angle of the shot and other considerations. Twenty-two master classes and three longer films were produced from this first session and uploaded on to an internet channel.

The launching of this internet channel late in 2015 laid foundation for MAMC 2.0 that ran in the summer of 2016. MAMC 2.0 involved Sheila Katsak and Nancy Wachowich filming but also commissioning teams of apprentice seamstresses/videographers to record sealskin sewing skills using project iPods. During this MAMC 2.0 session, two young seamstresses, Jeannie Kigutak and Jemmima Innuarak assisted their neighbour, elder Mary Amagoalik, curing sealskin and filming the process. Young mother and seamstress, Jane Singoorie, worked with her husband, Eepah Ootoova, documenting step-by-step in the living room, with their four children afoot, her first attempt at making kamiks. Sisters Sarahme Akoomalik and Regilee Ootoova demonstrated how to scrape the subcutaneous fat from fresh sealskin, how to prepare a skin for drying, hanging, and stretching, how to soften a dried skin or boot sole, and the tools necessary for sealskin production. Sarahme and Regilee also held individual sessions for Sheila and Nancy, where they demonstrated elements of kamik making, with their granddaughters beside them. Younger seamstresses Georgina Pewatoaluk (with her baby Neil in the hood on her back) and Sheena Kasarnak both demonstrated how to make coloured and beaded sealskin hair decorations. Louisa Amagoalik, sewed women's decorative mittens and sealskin zipper-pulls for the camera while caring for her baby Timothy.

Skills sessions were recorded in peoples' living rooms, sometimes with seamstresses holding babies in the hoods of their amautiqs,
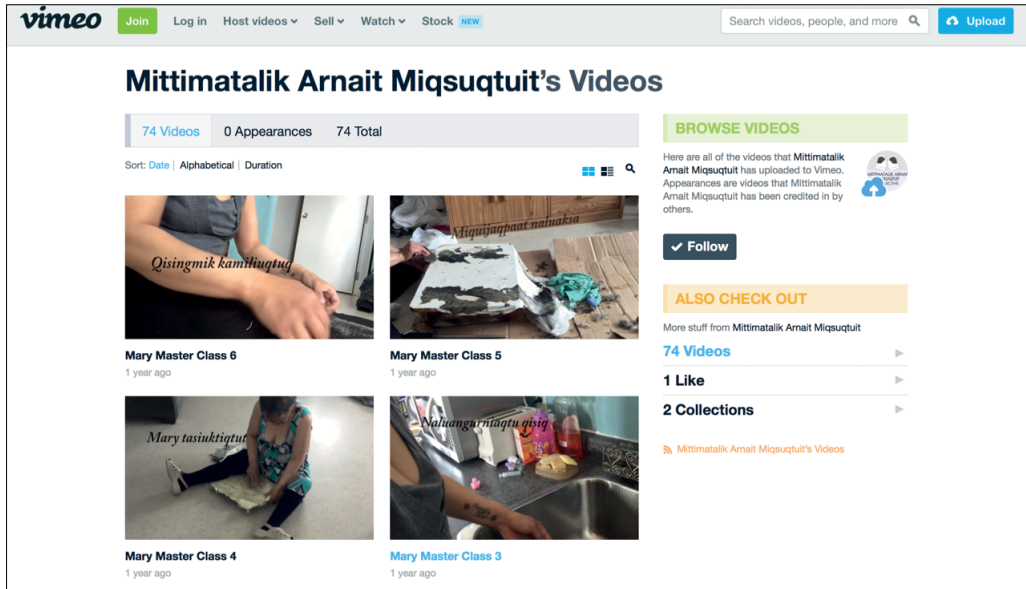
Fig. 2. MAMC Vimeo site.

on their laps or resting beside them, and sometimes with slightly older children contributing to the process. With the emergence of MAMC 3.0 and MAMC 4.0, the initiative's objectives became even more responsive and organic, as new community needs emerging and knowledge gaps newly identified came to shape the process. For example, one elderly seamstress disapproving of the way younger people treated their footwear, called in MAMC member to film a structured lesson on how to dry and fold sealskin kamiks so that they would not rot. Collating a glossary of Inuktut specialised sewing terms became another preoccupation of local MAMC members, with several weeks in the summers of 2017 and 2018 dedicated to the creation of an online dictionary of sewing terminology. Inuktut recording sessions were planned and executed with elder seamstresses discussing specialised linguistic terms, their pronunciation, usage,

and linguistic, ethical, and moral implications.

As most of the master classes were in Inuktut, local collaborators were largely in control of the cultural content produced, how it was produced, and of how the project should progress. The emphasis of skills acquisitions rather than on the finished product as a work of art, and the use of portable and accessible hand-held equipment created a DIY-style expression. This aesthetic had the added benefit of reducing the perceived threat of outside appropriation of cultural heritage.

In the latter stages of each production round, Romanian born, UK-based professional film editor and women's craft enthusiast Melisa Costinea, was an essential contributor working collaboratively with MAMC members via online messaging to turn footage into masterclasses. Copies of all photographs and raw footage were left with seamstresses and also stored centrally in the

38 settlement. And once Melisa had completed each round of editing, seamstresses reviewed the edited master classes and provided input as to format and content before they were uploaded on to the internet channel. Copies of final productions were transferred on to CD-ROMs for elders without computers or internet access, so that they could play them in their living rooms in their own time. All material on the Internet channel was also copyrighted to MAMC, to seamstresses from Mittimatalik and their research partners.

While some of the clips have been made into compilations and aired in public locales,[10] the internet channel has served as MAMC's central platform for the outward projection of their work. Co-founders Sheila Katsak and Nancy Wachowich envisioned MAMC's Vimeo channel[11] as continuing the conversations between women seamstresses that started in the settlement, spurring new forms of creative expression on and off-line through the involvement of digital media. There are no translations or subtitles for the Inuktut dialogue in the 74 online master classes. Film footage is generally edited into 10–20 minute master classes, easily accessible through smart phones or downloadable on to hard drives for seamstresses who want to review a particular skill repeatedly without using up their gigabyte allowance. Updates on new productions and filming sessions underway are announced on MAMC's dedicated Facebook page. During MAMC's busy recording periods, both the Facebook and Vimeo site had as many as 1,000 views per day as local participants and viewers shared popular posts of elder seamstresses with neighbours and friends.

Compared to *Skinddragter Online*, the viewing audiences for MAMC's online platforms are fairly limited. The Collective's social media work attracts attention from specialised audience groups, but it remains largely directed at local practitioners of sealskin sewing. Online masterclass films are largely in Inuktut, and aimed at Inuit audiences. As practical masterclasses the films speak for themselves. While a new web platform is currently under construction, the existing Vimeo channel is simply a long list of films. Because of its focus on conversations internal to Nunavut sealskin sewing enthusiasts, the site is left unstructured with little explanation outside the actual films. This could be described as impenetrable or difficult to navigate, as audiences are not directed regarding how the material should be approached. Alternatively, this lack of ordering could be described as *ontologically open* and allowing for many kinds of uses and orderings (Verran & Christie 2007).

THE MANY ASPECTS OF DIGITAL REPATRIATION

Skinddragter Online and MAMC are initiatives that find themselves on different ends of a digital continuum. *Skinddragter Online*, with its technological ambition and synergetic interdisciplinarity speaks to diverse audiences in its forging of new scientific knowledge. Organic material from Arctic fur has enabled The Danish Museum of Natural History to produce live DNA and new information for the phylogenetic mapping of key Arctic species (Sinding 2015). The photogrammetry and the use of the Faro arm with its translations from 3D to 2D patterns are recognised as important innovations in digital museum technology (Jensen *et al.* 2012; Gulløv *et al.* 2013).

The *Skinddragter Online* database was staged as an act of digital repatriation and knowledge exchange. It set out to follow up the work of the national museum's UTIMUT repatriation (Gabriel & Dahl 2008) by providing access to

Fig. 3. Picture of a seal skin product. Photo Gro Ween.

the costumes that remained at the museum in the Danish capital. This is a valuable contribution. While institutions such as the Danish National Museum go to lengths to provide visiting representatives from source communities priority access to artefacts in storage, more intimate investigations of Arctic artefacts are still difficult: There are economic reasons for this, but as importantly, the fragility of older organic material, such as Arctic fur garments, restricts certain forms of handling in museum storage. Past conservation practices that relied heavily on pesticides, have

left many of these objects toxic. The new visual technologies employed by *Skinddragter Online* offer the possibility of new forms of intimate inspection. Arguably, the platform could provide more information than even physical repatriation would allow.

Skinddragter Online was intended to be far more sophisticated than the average museum digital catalogue and also contributed significantly more information. However, not unlike standard museum catalogues, the structure of the database established the museum as *speaking to* the local indigenous

40 people, being the party that determined what information was relevant and how information should be ordered. These decisions are, as Wang describes in this issue, not uncomplicated, as experienced in the negotiations involved in the making of the Gjoa Haven portal.

As all digital solutions, *Skinddragter Online* also navigated further challenges relating to its size, ambition, and to its relevance to particular audience groups. Its innovative features, outside standardised museum solutions made it complicated to upload information into it. The database hence became labour intensive in its production. For example, the Norwegian Cultural History Museum was invited to export their Roald Amundsen collection into *Skinddragter Online*, but technological innovations such as the Faro arm were not available at the museum, and nor were resources to include photogrammetry or even to add new measures of fur garments. The general availability of specialised features is obviously an important issue. It is a question of how many entries with specialised features a database must have to represent something more than a museum catalogue, if that is what it aspires to be.

Returning to the digital tools, *Skinddragter Online* also included issues of audience. In its original form, the interface was presented in Danish and English, providing access to residents of a number of source communities, along with other interested parties. As described, the database however also had an ambition to expand to other languages. For *Skinddragter Online* to become a larger all-encompassing database for Arctic fur, especially for Arctic craftspeople, it was essential that more languages were included beyond Danish and English. However, the inclusion of languages was a considerable expense. In the end, none of the other Scandinavian museums

involved were able to find the funds needed too add their Arctic artefacts to the database.

Many of the challenges experienced in association with *Skinddragter Online* are common to the production of such all-encompassing solutions: economic restrictions, the vast labour power necessary to make information digital, along with issues regarding size of the database and its maintenance. Often expansions are planned without proper consideration of such very real material aspects of digital work, as is also described by Wold and Ween (this issue).

Material aspects of the digital also intervene in other ways. There are serious considerations involved with sharing and downloading in places like the Arctic, where Internet connections are of a different quality. *Skinddragter Online* with all its technical finesse was a heavy application. With high-resolution photogrammetry and 3D to 2D patterns, it was difficult to access from outside large museum and university servers. In many Canadian Arctic communities, without cable connections and with very expensive solutions, Internet connectivity further hampers the idea of access for users in source communities (Borrero 2016).

Another complication involves different understandings of cultural appropriation. For many institutions, including the National Museum of Denmark in Copenhagen, and the Cultural History Museum in Oslo, the general policy has been to offer open access to all its online resources. Arctic indigenous groups, on the other hand, can often find themselves guarding their heritage from threats of cultural appropriation. Open sharing of patterns and sewing techniques is therefore a hotly contested issue with many culture bearers voicing the inappropriateness of a museum, rather than an indigenous group, making the

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decision to invite open access. At the same time Verran & Christie (2007), Were (2013), and Wang, (this issue) have pointed out that source communities might see open source as a form of appropriation or a new act of colonialism.

Many of the issues relating to ownership raised above emerged in discussions between partners in *Skinddragter Online*. Indeed, the question of how to approach communities to ask for permission and determining whom to ask remains complicated. Even if garments from, for example, Rasmussen's and Amundsen's extensive travel records *could* be traced back to places and family groups, would these be the only individuals one should consider rightful owners of these vital pieces of cultural heritage? Many of the artefacts in *Skinddragter Online* are close to a hundred years old – determining provenance is not always straightforward or clear. Sometimes the region where it was made is evident in the garment's design, but the camp or family that a costume came from is not.

When all this is said, it is important to remember that photogrammetry and 2D patterns do not in themselves produce the actual garments. The information provided is arguably not in itself enough to create complete copies of the artefacts. Fur must be available. It would have to be processed, cured and treated correctly. Sinew must be taken from other animals to be used for stitching, and manufactured with an eye for the correct thickness and softness. The exact stiches required must be known, and they must be executed with such finesse that they hold the pattern pieces and last. The garment must be assembled in the right order. This is not a small task, and requires far more contextual knowledge and training that can be acquired from *Skinddragter Online.*

Arguably, MAMC offers an entirely different perspective on the artistry and resilience of arctic skin sewing than that found on *Skinddragter Online*. Yet, even with the cultural contexts and warm domestic scenes that MAMC masterclass productions include alongside the skills training, neither does this online platform allow for a "one stop shopping" in skills acquisition. While *Skinddragter Online*, scientifically speaking, was exquisite, it did not reveal the knowledge produced or the traces of time, place, and subjectivity involved. And while MAMC reanimated the Arctic skin garments in a way that included practices of everyday life (Verran & Christie 2007; Basu 2015), it still invites young seamstresses to consult with their elder teachers in offline spaces to fill in the knowledge gaps (Wachowich 2018).

Neither MAMC nor *Skinddragter Online* are closed events (Verran & Christie 2007). Both can continue to be added to. From an outside point of view, these two digital approaches are complementary, and together they could represent a substantial contribution to strengthening connections between museums and Inuit communities and to revitalise local craft traditions.

Conclusions

Both interfaces this text describes are made with a genuine enthusiasm for Arctic fur craft production. Both interfaces are niche products. The engagements that each interface aspires to, however, differ in terms of content, approaches to knowledge production, collaboration, and the stated purpose of their knowledge transmission. One is a techno-scientifically oriented interdisciplinary collaboration that produces new knowledge. Its focus is fur, but the technological achievements it exhibits (such as new uses of the Faro arm and ancient DNA production) is of relevance outside

42 of Arctic material culture circles. The other primarily speaks to a local audience in a language only available to some, with an approach that takes into consideration local forms of pedagogy.

One could argue that the shared commitment to the documentation of Arctic fur clothing and the complementarity of the information produced could be an argument for incorporating MAMC into the *Skinddragter Online* site. This suggestion is, we stress, merely hypothetical, a thought experiment. As some readers already will have recognised, such a merger could be experienced by many as an act of appropriation. Embedded within and made part of a national museum's directives, the purpose of the knowledge produced in MAMC would change, placed in a museum so to speak. This does however not mean that MAMC avoids all appropriation issues. While it's methodology, content and display practices attempt to circumvent acts of appropriation of concern to locals in Mittimatalik, the question remains whether non-local MAMC members could be understood as appropriating when engaging in (agreed to) activities such as including sections of the masterclasses in Arctic museum exhibitions.[12]

How best to attend to issues of cultural appropriation is, as we all know, an issue hotly contested. One could argue that lack of digital availability is the best working strategy, but then this could also prevent knowledge from reaching younger generations. Moreover, to secure a complete lack of digital exposure has become virtually impossible. Facebook and other social platforms are used across indigenous communities as a way of keeping up with family members and friends. This usage requires accepting Facebook's ownership of all photos displayed. Some argue that greater public awareness produced by digital exposure could protect indigenous intellectual property.[13] New awareness that a craft or an art form actually belongs to someone could produce new outside awareness of cultural meaning, the potential costs of appropriation and awareness of copyright issues. Yet others would insist that access for members of source communities to previously unavailable knowledge is more important than control over material culture and history.

In the end, all these speculations are at best "in progress". As Wold and Ween have described in this issue, the availability of objects to audiences in a virtual museum depend upon many factors, some of which are increasingly hard to predict. *Skinddragter Online* has obviously offered new forms of knowledge acquisition that bypass physical inspections.

By establishing comparisons between digital interfaces created by *Skinddragter Online* and Mittimatalik Arnait Miqsuqtuit Collective, we set out to explore issues that arise when attuning digital interfaces to different audiences. In both, approaches to knowledge transmission enable particular work to be done. Yet, what appears necessary for some in the creation of an online space, can hold for others complex underlying questions relating to training needs, accessibility and ownership. Crafted forms of communication that emerge in each of the digital interfaces need to be kept apart in order to remain heterogeneous, to do their intended work and to let members of the audience investigate fur skin production with an eye to their own training needs. In this respect, our text, just as the lessons in garment making displayed on the two sites, remains incomplete. Audience responses to these digital platforms have not yet taken place (Wold and Ween, this issue). Our paper thus exists as a foundation, a basting stitch, and a call for further investigations.

Digitalisation of crafts. Comparative approaches to Arctic fur

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Notes

1. Pond Inlet Womens' Sewing Collective.
2. Funded by the Social Sciences and Humanities Research Council of Canada (SSHRC) (2013–2017).
3. Skinddragter Online was at first funded by Northern Worlds research programme.
4. rrn.community.org.
5. Sierra.Leone.Heritage.org.
6. The project was financed by Nordisk Kulturfond, Knut Rasmussens Fond, and Augustinusfonden, and supported by the Cultural History Museum in Oslo.
7. The MICH principal investigator is Anna Hudson at York University, Canada.
8. Cited from the MICH webpage. http://mich.info.yorku.ca. The project is funded by the Social Sciences and Humanities Research Council of Canada (SSHRC).
9. Soft boots, originally made from reindeer or seal skin, traditionally worn by Inuit, Inupiat, and Yup'ik peoples.
10. September-October 2017, The University of Aberdeen Sir Duncan Rice Library lobby, June-November 2018, The Qiqiktani General Hospital Day Clinic waiting room, August-November 2018, the Sámi University of Applied Sciences, Kautokeino, Finnmark.
11. https://vimeo.com/mamc.
12. See NyARKTIS.khm.uio.
13. For example, see the United Nations Declaration on the Rights of Indigenous People (2007).

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