WE ARE ALL RELATED
AUGMENTED REALITY GUIDE

Augmented reality as a learning resource for
Indigenous-settler relations

STUDENT GUIDEBOOK 2019

ACKNOWLEDGEMENTS

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A summary article about this project is published in *Northern Public Affairs*[1].

Graphic design and layout of this handbook, including cover by Hanne Pearce.

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Thank you,

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UNIVERSITY OF ALBERTA

1 Link: http://www.northernpublicaffairs.ca/index/volume-6-special-issue-2-connectivity-in-northern-indigenous-communities/we-are-all-related-using-augmented-reality-as-a-learning-resource-for-indigenous-settler-relations/
2 Link: https://creativecommons.org/licenses/by-nc/4.0/

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INTRODUCTION AND PURPOSE

Introduction

Welcome to the We are All Related AR Guide Open Educational Resource (OER). This OER was developed to help a team of Indigenous and settler partners navigate the process of co-creating an augmented reality (AR) project. It is designed for teachers and students working in partnership with Indigenous Knowledge Keepers, Elders, and storytellers.

This document is the Student Guidebook - it accompanies the Teacher Handbook, which is aimed at facilitators and includes summaries of section topics, learning outcomes, discussion questions, and activities. While this curriculum package is designed as a team-based project involving a facilitator, individuals can also work through the materials by using both resources.

This project was initiated shortly after the release of the Truth and Reconciliation Commission (TRC) of Canada's final report and Calls to Action in 2015. A number of the Calls to Action focus on education, including Action 62(ii) to: "Provide the necessary funding to post-secondary institutions to educate teachers on how to integrate Indigenous Knowledge and teaching methods into classrooms" (Truth and Reconciliation Commission of Canada, 2015, p. 7). In this context, we wanted to develop a freely available Open Educational Resource (OER) that teachers and students could use to engage with Indigenous knowledge and teachings in their courses and classrooms.

While curriculum about the shared histories and present contexts of Indigenous and settler peoples has an important and necessary role, our goal for this project was different. We wanted to create a set of opportunities for teachers and students to work directly with Indigenous Knowledge Keepers and Elders in a creative, collaborative project. This orientation was designed to encourage relationship-building and ongoing dialogue and reflection about difficult questions. Through this 'learning by design' approach, we focused on outlining ways that participants can practise successful Indigenous-settler relations.

This project blends community engagement with communication studies - an approach explored in a past graduate course in the MA in Community Engagement program at the Faculty of Extension in the University of Alberta. During that class students were tasked to create short videos highlighting community engagement initiatives undertaken by faculty researchers and their community partners. One team of students (Amanda Almond and Billy Smale) decided to create a digital storytelling project focused on Treaty 6 Marker Bear sculptures carved by Stewart Steinhauer and located on University of Alberta campuses.

You can view their video here: https://www.ualberta.ca/extension/sweetgrass.

Sweetgrass Bear Video Created by A. Almond and B. Smale in MACE 501, Fall 2017

This combination of community engagement and digital media production led to a subsequent project exploring the possibilities associated with an emerging digital medium: Augmented Reality (AR). Through layering digital content on 'real world' objects and scenes, AR offers a new way to create and share stories. A collaborative approach to AR design and content development could engage students in exploring Indigenous-settler relations through the AR story-making process, with the aim of co-creating content that centred Indigenous voices and perspectives. With this focus in mind, in 2017 we applied for a development grant from the Teaching and Learning Enhancement Fund at the University of Alberta (TLEF), and received support to develop a 'proof of concept'. Part of that project was an Open Educational Resource (OER) guide for teachers and students. This OER, which consists of this student guidebook and an accompanying teacher handbook, is the result of that work.

This OER is designed to walk you through the process that our team developed for our proof of concept. Since First Nations, communities, stories and relationships are highly diverse, we cannot offer you a step-by-step instruction manual because this work must be grounded in trusting, reciprocal relationships that develop over time through repeated engagement and ongoing dialogue among partners. As well, First Nations and individuals are unique, with their own specific requirements and desires. Appropriate partnerships involve learning about and negotiating these areas together. For example, in this guide we will discuss the importance of following Saddle Lake Cree protocol in creating our AR story. However, we cannot advise what specific protocol you may need to follow in your project, because protocol can be different for different communities and purposes - and some partners may not in fact use protocol.

Your team's AR storytelling approach must be grounded in the relationship with the First Nation and individual(s) that you are co-creating the story with and the topic of the story you are trying to tell. With these contingencies in mind, this guide provides a series of considerations for teams to contemplate, discuss, and prepare for as they plan and create their AR stories.

Purpose

The We are All Related AR Guide OER was developed for teams to use to explore Indigenous-settler relations and understanding through co-creating AR stories together. It is designed for several audiences, including teachers wanting to integrate Indigenous teachings into their classrooms, non-Indigenous peoples wanting to learn more about Indigenous ways of knowing and storytelling, and Indigenous peoples interested in sharing stories through digital media. It is designed as a resource for collaborative story-making and relationship-building, and covers governance principles that aim to conduct projects in an appropriate and respectful way. It also provides information on the limitations and challenges of using technology in this way, including issues regarding ownership, control, access and possession of digital stories.

We envision many different creators taking up and using this OER, from youth recording stories with their grandmothers, to post-secondary educators, students and Knowledge Keepers working on a course project.

EXPLORING AR FOR LEARNING AND RELATIONSHIP-BUILDING

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1.1 What is Augmented Reality (AR)?

Augmented reality (AR) is a form of media that provides a digital content overlay over a “real-world” view of an object or scene. This “lens” can be provided through a number of viewing devices, but is currently most often done through a mobile device such as a smartphone. The digital overlay can include audio, images, video, or animation. Pokémon Go and Instagram or Snapchat filters that alter your appearance are popular examples of augmented reality.

AR will soon become increasingly commonplace. As we discuss in detail in this guide, we believe that AR is well-suited for Indigenous digital storytelling, given its ability to centre Indigenous voices and histories, and to connect stories to specific places. However, the widespread diffusion of AR also presents certain challenges and potentially negative impacts for Indigenous storytelling. These include issues associated with cultural appropriation, ownership and control of knowledge, and the perpetuation of negative stereotypes. We designed this guide to unpack the AR story-making process in a way that we hope highlights both the benefits and the limitations of this emerging technology.

1.2 Why AR for Learning and Relationship-Building?

Co-creating AR stories in the context of Indigenous-settler relations offers opportunities for learning and relationship-building both through the AR design process of creating the stories, and later, for users experiencing the AR story content. The AR design process offers several learning opportunities:

- Guided exploration of complex and sometimes challenging issues, such as settler colonialism, cultural appropriation, and project governance
- Active engagement in relationship-building activities, including sharing ideas and learning from one another throughout the story-making process
- Practice in respectful and ongoing collaboration and relationship-building
- Creative co-production using emerging digital media technology

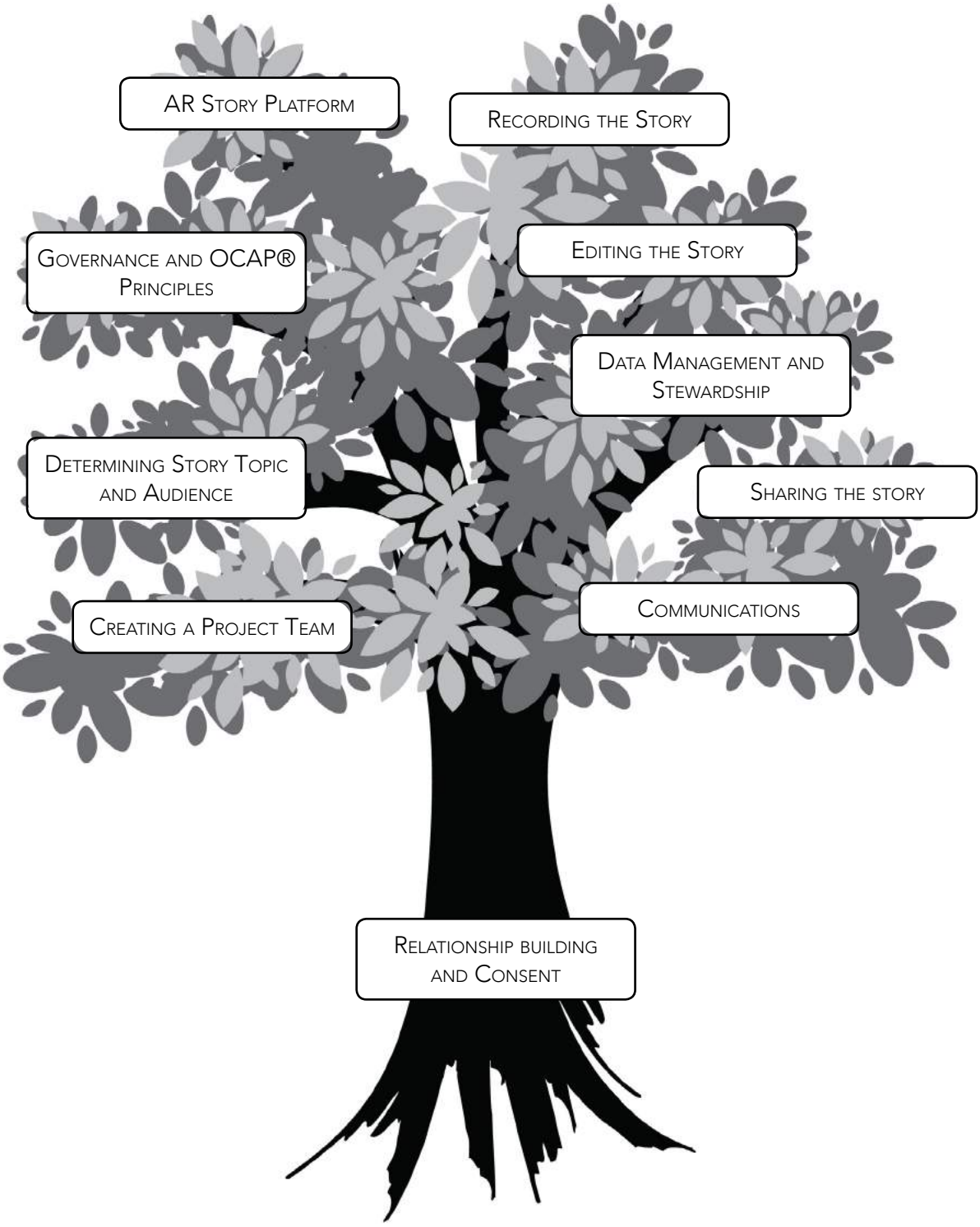
Augmented reality offers media producers new and creative ways to share intangible cultural heritage, including oral storytelling and dance. AR content can be tethered to a specific site through geolocation for localized, place-based sharing and teaching. Additionally, AR audio and visual content can (re)centre the voices of storytellers in familiar spaces, creating opportunities to invite and unsettle viewers by sharing new insights and countering dominant perspectives and histories.

1.3 Adapting the AR Story-Making Process

While the AR story-making process described in this guide can be adapted to fit the requirements of different user communities, we focus on working with Indigenous Knowledge Keepers, Elders, or storytellers to co-create a publicly available digital story, for the purpose of building Indigenous-settler relationships and understanding. In this context, we present a process that can be customized for various academic disciplines, teachers, topics, communities, and stories.

We also wanted to ensure that this guide does not serve as a 'checklist' approach that avoids the important work of intentional and collaborative relationship-building. Towards that intention, the guide is designed to walk you through a flexible process that can be adapted to reflect the specifics of your partnership. This includes suggestions for and reflections on various stages of story co-creation, from building respectful and mutually-beneficial relationships, to questions of governance and data storage. Following this intention, we do not provide specific instructions in this guide. Decisions should emerge from discussions grounded in the relationship that your team develops over time.

To facilitate an adaptable process, we present a planning framework that consists of a series of considerations that project teams can work through. We chose to use the term "consideration" to identify when a topic requires attention. Carefully and respectfully working through these considerations as a team, you address key decision points in an appropriate way. These considerations are summarized in Figure 1 and Table 1 on the next two pages and discussed in detail in this guide.



The Story Making Process

Key Considerations	Check-ins
Creating a Project Team	• Relationship-building with an Indigenous Knowledge Keeper, storyteller, Elder or community interested in sharing a story through AR • Follow any protocol and permissions required • Reflect on your intentions in wanting to co-create an AR story • Determine preferred methods for team communication (e.g. meetings, email, etc.), documentation, and decision-making.
Determining a Story Topic and Audience	• Follow the lead of Indigenous partners in determining an appropriate story to share, and access, such as who is permitted to view the final AR story.
Consent	• Consent should be continuous and ongoing
Governance and OCAP® Principles Ownership, Control, Cccess and Cossession	• How will you ensure that ownership of cultural content remains with the community? • How will cultural content be accessed and by whom? • What party will house and steward project data including cultural content? • Begin planning early who will make decisions about these elements of the story and who will be responsible for project storage, maintenance and stewardship
AR Story Platform	• Which AR platform will you use to share your story? What implications are there for cost, ownership of and access to content displayed on the AR platform, and other considerations?
Recording the Story	• What format will your story be in (video, audio, images, animation)? • What equipment do you need to record the story? • What is your plan to prepare and record your story?
Editing the Story	• How will the editing process be done in a collaborative way?
Data Management and Stewardship	• Where will project materials be stored? • Who will maintain the materials? • Who will have access to the materials?
Communications	• How will you share information about your AR story with others?

1.4 Activity 1: Develop a draft timeline and list of considerations

Building on the resources noted above, work with your team to develop a draft timeline and list of considerations for your AR project. Think about the different elements you will need to think about at this early stage of your project. Consider logistical issues like time, resources, funding, and equipment. Raise questions around meeting times, communication styles, and the purpose and goals of your project. These kinds of project management considerations can act as a basis for future planning and development.

1.5 Guide Overview

The information in this guide is presented as four threads, braided throughout each section:

1 Topics - This is the main content of the guide that walks you through the process and decisions involved in co-creating an AR story.

2 Pedagogy

This is content for readers using the guide as a teaching resource. It includes discussion questions, reflection points, and activities to engage learners and build towards your AR story.

3 Resources

We have included resources you can access to dig deeper into each topic. The resources include:


Reading resources


Viewing resources


Listening resources


Participatory resources


Information resources


University of Alberta resources

4 We are All Related AR Prototype


This thread, marked with the bear icon, walks you through our experience of creating the We Are All Related AR demonstration stories in Summer/Fall 2018.

Sections in this guide

This guide consists of four core sections, each of which addresses a different step in the process of co-creating AR stories and exploring Indigenous-settler relations. We recognize that projects often develop in non-linear ways, and so present these sections as a series of guidelines and considerations rather than a fixed structure. The relationship that your team builds will best guide how this process can move forward in a good way.

Exploring AR for Learning and Relationship-Building - This current section provides you with an overview of the We are All Related AR project, and our goals for this guide.

Laying the Groundwork - This section orients and prepares readers to co-create an AR story. Topics include terminology, storytelling, relationship building, accountability, and governance.

Creating the Story - This section reviews the process of how to create the AR story and how to collaborate respectfully. It covers different types of AR content and story hosting platforms, and provides tips for recording your story.

Sharing and Stewarding the Story - This section provides information on how to share and steward (maintain and protect) your story. We'll discuss different approaches for managing and protecting digital content, including the OCAP® principles, copyright (and its limitations), and data preservation.

Batteries Not Included

It's true, we have not included batteries in this guide. We have also not included a set schedule for creating your AR story, or an indication of the time commitment required. That is because each AR story creation process - and the relationships that it is based in - will be unique. This kind of project requires flexibility and patience, and careful navigation through topics, considerations, and points for reflection. Each journey will be different and unique!

We note that we have not included a discussion of 3D modeling and animation AR story formats in this guide. This was a choice we made to keep the process and materials low-cost and accessible, based on presently-available technology.

Tell Us a Story

We invite you to use this guide to create and tell all kinds of AR stories. We hope you find our story-making process and this guide useful along the way, and look forward to hearing your story!

The photo above is of Sweetgrass Bear, a Treaty 6 marker sculpture carved by Stewart Steinhauer from Saddle Lake Cree Nation. Sweetgrass Bear is located in the Enterprise Square building in amiskwaciwâskahikan (Edmonton, AB, Canada). The We are All Related AR prototype stories are activated by scanning parts of the Sweetgrass Bear sculpture, such as the pipe or the crossed feathers. You can view some of these different 'trigger images' in Appendix C: 'We Are All Related' AR Trigger Images. These images, once scanned using HP Reveal, will trigger AR content created by our team and by students in COMM 597.

LAYING THE GROUNDWORK FOR CO-CREATING AR STORIES

This section orients learners to the implications of co-creating stories with Indigenous peoples, and introduces the "4 Rs" that can guide that work: respect, relevance, reciprocity, and responsibility (Kirkness & Barnhardt, 1991). Kirkness & Barnhardt introduced the 4 Rs with respect to First Nations and post-secondary education, and they have since been extended to research projects (Canadian Institutes of Health Research, 2009). These concepts can also be applied to the co-creation of AR stories:

Respect - the story process and final content recognize and respect cultural integrity, including the recognition that knowledge can take many forms

Relevance - the story process and final content must be relevant to the interests and needs of Indigenous peoples

Reciprocity - the story process and final content benefit all partners, and value their contributions

Responsibility - Indigenous peoples and organizations have roles of and responsibility in the project

Laying the Groundwork Table of Contents

2.1 Terminology

Language is imperfect and always evolving. Names and terminology can adapt to recognize power dynamics and history, to reclaim terms and definitions used in diverse languages, and to be more inclusive and respectful. Below we discuss two terms currently in use that are important to the goals and focus of this guide: "Indigenous" and "settler".

The term "Indigenous"

This term is currently used in 2018 to refer to First Nations, Métis and Inuit peoples residing in the territory currently known as Canada (Parrot, 2017).

This term refers to many diverse peoples with different languages, territories, and cultures - there are 634 First Nations in Canada, as well as Métis and Inuit communities (Gadacz, 2015). If you are referring to a specific people, using their preferred name is best. For example, Piikani Niisitapi (Blackfoot). Using preferred terms both demonstrates respect, and recognizes diversity and self-determination. Some names,forced upon Indigenous peoples by colonizers, have been used as a derogatory term, or are in fact English or French words. As Gregory Younging writes, "many Indigenous Peoples have been bringing the word their ancestors called themselves back into use" (2018, p. xi). People may prefer using their Nation's name in their own language.

For further reading:

Chelsea Vowel provides an overview of terminology in the first 2 chapters of her book Indigenous Writes: A Guide to First Nations, Métis, and Inuit Issues in Canada.

UBC also provides this online orientation: http://indigenousfoundations.arts.ubc.ca/terminology/

The term "settler"

"Settler" refers to non-Indigenous peoples who moved to Canada and settled here, or whose ancestors did (Regan, 2010; Vowel, 2016). The term settler is used to talk about settler colonialism, which is when people occupy land, assert ownership, and "become the law" (Tuck & Wang, 2012, p.6). There are differing viewpoints on whether the term settler is appropriate for people of colour; particularly in cases when ancestors arrived under slavery or escape from slavery (Snelgrove, 2014; Vowel, 2016; Amadahy & Lawrence, 2009; Jafri, 2012). The concept of Canadians as settlers is meant to be somewhat unsettling; the term challenges commonly understood notions of belonging and settlement. The term "settler" draws attention to how Canada was settled, and how colonial structures that exist today were and continue to be enforced.

For further reading:

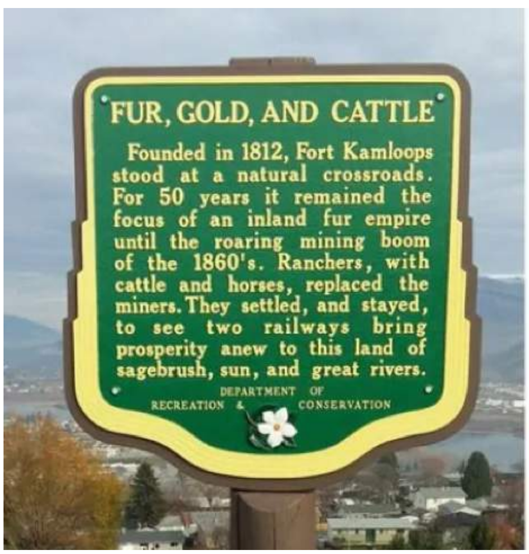
Dr. Adam Barker and Dr. Emma Battell Lowman, authors of Settler: Identity and Colonialism in 21st Century Canada, provide an overview of settler colonialism at https://globalsocialtheory.org/concepts/settler-colonialism/.

2.2 Whose Stories are Told

Settler colonialism in the territories currently known as Canada continues to impact what is known and recognized as truth, as well as the stories we share.

One common story is that the land currently known as Canada was empty and unused before pioneers and settlers arrived to tame and make it productive (Epp, 2008). These kinds of Western European settler stories often became highlighted, and other stories were disregarded or considered tales of legend or fantasy (Hampton & DeMartini, 2017). Stories and ceremonies that celebrated and transmitted Indigenous cultures, such as the sundance and potlatch, were banned with of imprisonment by settler governments (U'mista Cultural Centre, n.d.). Indigenous children were removed from their homes and forbidden to speak their languages in an effort to suppress their cultures (Truth and Reconciliation Commission of Canada, 2015). Until recently, such stories of the experiences of residential school remained unknown to many Canadians (Vowel, 2016).

An example of the erasure of Indigenous ways of living and knowing is how European explorers and settlers (re)discovered and (re)named places already known and inhabited by Indigenous peoples. For example, the University of Alberta is located in an area known as Edmonton, but also known as amiskwaciwâskahikan / ᐊᒥᐢᑲᐧᒋᐋᐧᐢᑲᐦᐃᑲᐣ (http://creeliteracy.org/2016/12/14/5133). In another example, archeologist Joanne Hammond has been exploring how settler discovery stories are privileged through roadside signs across British Columbia in her satirical work.



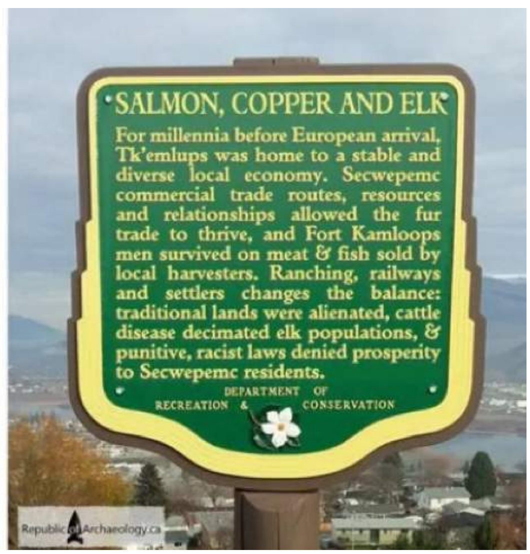


Photo Courtesy of Joanne Hammond, Republic of Archeology. You can view more of Joanne's rewritten signs at http://republicofarchaeology.ca/blog/2017/1/4/another-roadside-attraction-that-erases-indigenous-people-and-reinforces-colonial-righteousness.

Indigenous Initiatives Office - UAlberta[1]
The Indigenous Initiatives Office stewards several initiatives related to two guiding principles: 1) Building relationships within the University of Alberta and with Indigenous communities and institutions in Treaty 6 Territory, and 2) Building University of Alberta's capacity to undertake the work of truth-telling and reconciliation.

1 https://www.ualberta.ca/provost/our-initiatives/indigenous-initiatives

Indigenous Canada MOOC - UAlberta[2]
Indigenous Canada is a Massive Open Online Course (MOOC) that explores Indigenous histories and contemporary issues in Canada.

Workshops in Building Capacity for Reconciliation - UAlberta[3]
Augustana offers a co-curricular certificate program with six thematic workshops to learn more about Indigenous peoples of Canada

Indigenous Writes: A Guide to First Nations, Métis & Inuit Issues in Canada[4] *Chelsea Vowel offers a highly accessible introduction to topics such as culture, history, and myths about Indigenous peoples. Electronic and print copies are available through the University of Alberta libraries and Edmonton Public Library.*

Imagining a Better Future: An Introduction to Teaching and Learning about Settler Colonialism in Canada[5] *Two historians and instructors provide an introduction to settler colonialism, offer guidance for teachers and students, and share resources for further reading and learning.*

Native-Land.ca[6]
Native-Land.ca hosts an interactive map where you can view territories, languages, and treaties. A teacher's guide is available online for the Native-Land map, including discussion questions.

Guide to Acknowledging First Peoples & Traditional Territory[7]
The Canadian Association of University Teachers (CAUT) offers a guide to territorial acknowledgements arranged by province.

Enhancing School Science with Indigenous Knowledge: What We Know from Teachers and Research[8]
Stories, resources and strategies from teachers enhancing their science curriculum with Indigenous knowledge, many for the first time.

Infusing Indigenous Perspectives in K-12 Teaching[9]
This guide from the Ontario Institute for Studies in Education (OISE) at the University of Toronto provides Information to locate books, movies, music, activities, and lesson plans for instructors to "infuse more Indigenous content into their practice".

2 https://www.ualberta.ca/admissions-programs/online-courses/indigenous-canada
3 https://www.ualberta.ca/augustana/services/aso/workshops
4 http://www.portageandmainpress.com/product/indigenous-writes/
5 http://www.unwrittenhistories.com/imagining-a-better-future-an-introduction-to-teaching-and-learning-about-settler-colonialism-in-canada/
6 https://native-land.ca/
7 https://www.caut.ca/content/guide-acknowledging-first-peoples-traditional-territory
8 https://www.usask.ca/education/documents/profiles/aikenhead/enhancing-school-science.pdf
9 https://guides.library.utoronto.ca/c.php?g=251299&p=5004969

First Peoples Principles of Learning[10]

This printable poster reviews several Indigenous principles of learning, including that learning is "holistic, reflexive, reflective, experiential, and relational".

Blanket Exercise[11]

The Blanket Exercise describes 500 years of history in a 1.5-2 hour workshop. Participants stand on blankets representing land and walk through pre-contact, treaty-making, colonization and resistance. A briefing session is recommended afterwards.

Journey to Reconciliation (55 minute video)[12]

A group of Indigenous youth learn about the history of residential schools and engage in an act of artistic reclamation in an Edmonton LRT station.

10 http://www.fnesc.ca/wp/wp-content/uploads/2015/09/PUB-LFP-POSTER-Principles-of-Learning-First-Peoples-poster-11x17.pdf
11 https://www.kairosblanketexercise.org/
12 http://miyopimatisiwin.com/projects/journey-towards-reconciliation/

2.3 Activity 2: Plan a literature review to guide your project

A Literature Review Plan traditionally describes the literature you will use to develop your project. However, we suggest that you also consider including other forms of knowledge, such as oral and visual media, to reflect and acknowledge different knowledge systems and expertise. Organize this plan as an annotated bibliography: at minimum, develop a list of 5-10 sources and a short commentary on them. Include a short introduction that frames your materials in the context of your AR project vision. Think of this plan as a research foundation for your project. While there is neither time nor space to comment on every interesting aspect of every reading, highlight those points or issues that are most effective in summarizing your project for others. Plan to present more depth of analysis and discussion in your literature review, which you can work on after consulting with your project team.

2.4 Sharing Stories

Sharing stories is a way to resist the suppression of history, knowledge, and culture (Corntassel, Chaw-win-is, & T'lakwadzi, 2009; Gaertner, 2016; Thomas, 2005). Stories are used as a means to share experiences and knowledge, indicate relationships, and sustain culture (Chilisa, 2012; Iseke, 2013). The person telling the story, and the person one hears the story from, are connected to the story's meaning and context (Kovach, 2009). Linda Tuhuwai Smith (1999, p.145) explains:

> *"For many indigenous writers stories are ways of passing down the beliefs and values of a culture in the hope that new generations will treasure them and pass the story down further. The story and the story teller both serve to connect the past with the future, one generation with the other, the land with the people and the people with the story."*

Dion (2004) writes about (re)telling stories carefully to both unsettle listeners and invite them to challenge depictions of Indigenous peoples in educational materials. Storytelling is integral to the societies of Indigenous peoples, and care is needed in how their stories are co-created and shared (Iseke & Moore, 2011). Stories are also a means to build and maintain relationships, which is one way that storytelling supports Indigenous-settler relations.

There are many different types of stories: some are scientific, some are sacred, some are mythical, and some are based on concrete experiences (Wilson, 2008; Kovach, 2009). Stories are also associated with certain responsibilities around ownership, access and use. Some are told seasonally, or attained through proper protocols and relationship-building, or are otherwise restricted to certain contexts or audiences (Iseke, 2013; Local Contexts, n.d.). Let the protocol established by the storyteller you are working with be your guide for how to manage the ownership, documentation, access and use of the stories you are working with.

Small Group Discussion:
Stories can share, teach, and entertain. What roles have stories played in your life, and in your community?

Exploring Storytelling through Art:
Share a story of your own through art. Storytelling can be explored through filmmaking, photography, playwriting, creating a collage that shares a narrative, or other art forms.

For the We are All Related AR project, Cree Knowledge Keeper Diana Steinhauer shared stories about Treaty, her vision which inspired the Treaty 6 marker bear sculptures, and other teachings. Sculptor Stewart Steinhauer shared stories on his work as a granite carver and his efforts to bring form to Diana's vision. We also recorded an introduction video to orient viewers to the stories and to introduce protocol. The stories all relate to the Sweetgrass Bear sculpture, and what Sweetgrass Bear symbolizes and teaches.

2.5 Relationship Building

Stories and storytelling can express, build, and nurture life-long relationships. Maintaining good relations will play a vital role in creating your AR story. In their guidebook Planning and Preparing a Digital Storytelling Project on the Legacy of Residential Schools (2014), the Oral History Centre explains:

> *"The outcome of the digital storytelling project will depend, to a large extent, on the relationships that exist going into the project, and the relationships that are built and nurtured through the project. Good relationships are an essential component of the digital storytelling project. The project facilitator, participants and collaborating organizations, as well as support technicians and funders, need to have good relationships with one another, in order to develop a shared vision for the project and collaborate in a respectful, ethical and productive manner." (p. 7)*

Truthful intentions and relationships will be built and sustained in the process of co-creating AR stories with Indigenous Knowledge Keepers, storytellers and Elders. These relationships will influence and support your project and heart work. Hopefully they will continue long after the project ends, and spark new projects and dialogues. Ideally, the intention of a project is to provide not only a personal but rather a collective benefit. Here are a few things to think about when building lasting, positive relationships, both during the AR story creation process, and beyond.

- Respect cultural differences - Respecting cultural differences means both acknowledging the diversity amongst Indigenous peoples, and also recognizing and learning about differences between your own culture and the cultures of others. Ermine (2007) describes collectively observing

"how hidden values and intentions can control our behaviour, and how unnoticed cultural differences can clash without our realizing what is occurring" (p. 202).

- **Be trustworthy** - Work with honesty, integrity, and reliability.
- **Be patient and flexible** - Collaborative work is time-intensive, and needs can change throughout the project.
- **Prioritize the relationship** - Project partners are accountable to one another; working together in a relationship can be just as much (or more) about the process as it is about the final outcome.
- **Be reflexive** - Take time to think critically about your own thoughts, experiences, decisions, and actions. A journal can be helpful for this.

You need to know yourself, and where you come from, in order to work with and get to know the community that you intend to work with. You need to know the community and people you are working with. How would they like to work together? What stories do they want to share, and why? How would they like to share the stories? What ceremonies, protocol or other requirements need to be fulfilled to work together in a good way?

Indigenous Ally Toolkit - English[1] or French[2]
This 8-page toolkit brochure from the Montreal Urban Aboriginal Community Strategy Network (MUACSN) is a highly-recommended resource for people interested in being an ally. The toolkit shares 3 steps, with advice for each: be critical of any motivations, start learning, and act accordingly.

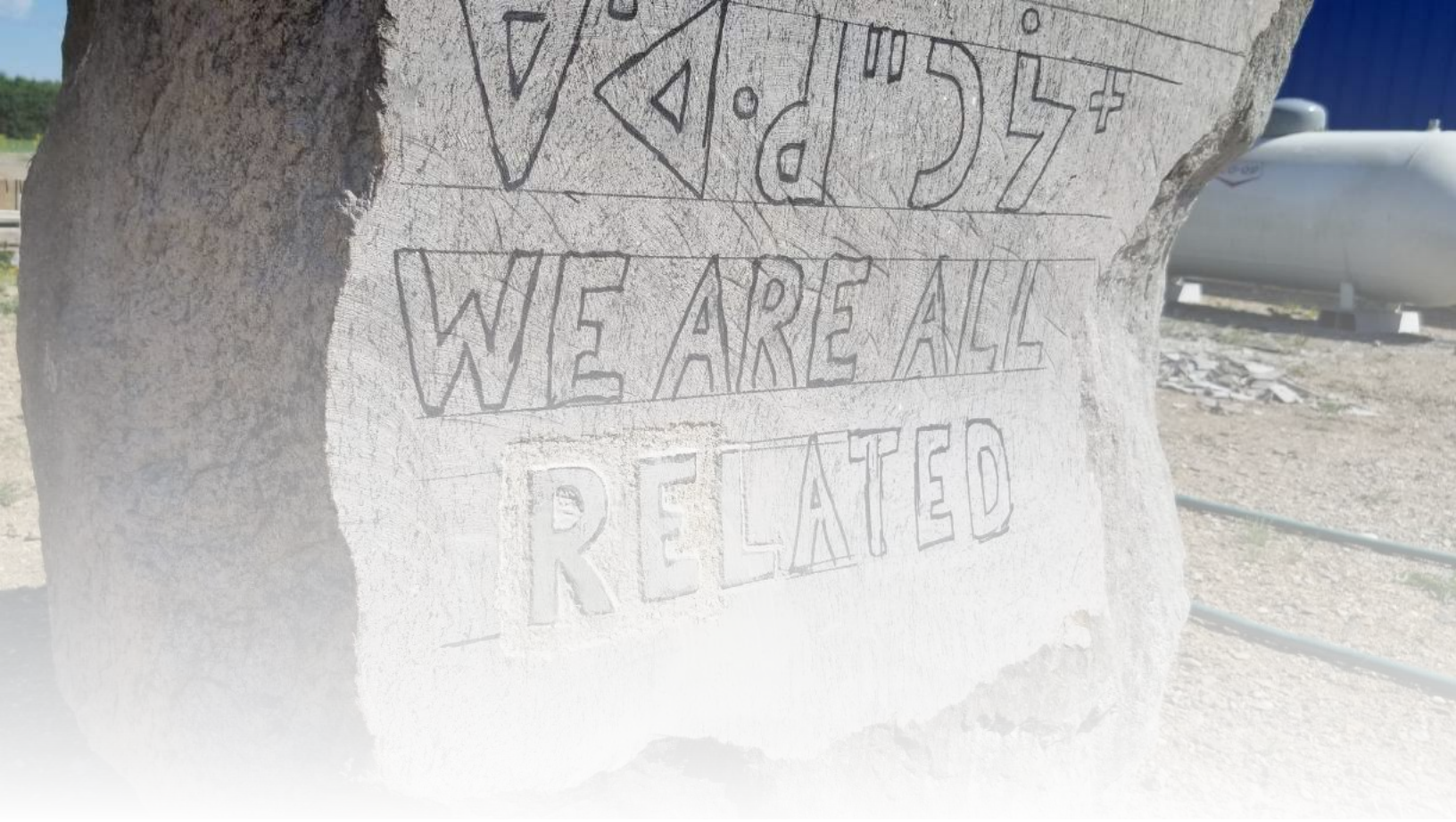
Reserve 107: Reconciliation on the Prairies documentary [3] *(32 min, 33 sec)*
This film explores how an Indigenous and settler community came together after the realization that settlers had purchased and settled on reserve land that should not have been sold. The film touches on the meaning of the land to both communities, and their initial steps towards getting to know one another. The website includes a study guide.

Relational Accountability

> *"We are accountable to ourselves, the community, our environment or cosmos as a whole, and also to the idea or topics that we are researching. We have all of these relationships to uphold."*
> *Wilson, 2008, p. 106.*

Relational accountability speaks to the responsibilities that we have to ourselves and to one another. In the context of this guide, it concerns our relationships

1 https://gallery.mailchimp.com/86d28ccd43d4be0cfc11c71a1/files/102bf040-e221-4953-a9ef-9f0c5efc3458/Ally_email.pdf
2 https://gallery.mailchimp.com/86d28ccd43d4be0cfc11c71a1/files/84889180-9bf0-46f2-8de0-dc932e485013/FR_Ally_email.pdf
3 https://www.reserve107thefilm.com/



as co-creators of digital AR stories. Discussing relational accountability in research, Wilson (2008) discusses four different activities during which Indigenous scholars are accountable to their relations:

1) Selecting a topic to research
2) Methodology, or how the information is gathered
3) Analysis
4) Presenting outcomes

These four ways of being accountable are applicable to co-creating stories. How will you select a story topic that is respectful and accountable to the community that you are creating the story with? How will you appropriately and respectfully record and present the story content, and the story itself? How will you share the story?

We will walk through all of these considerations throughout the story-making process. It is important to note that listening is a critical skill that Wilson and colleagues discuss in their discussion of relational accountability. In research we are trained to try to ask the right questions to generate knowledge. It is just as important to listen carefully to the answers that people give in response.

Reflection: How will your story, and the process of creating it, contribute to the building and sustaining of relationships? Consider how the story might contribute to:

- Your relationships
- Relationships within your community and/or Nation
- Relationships within the Knowledge Keeper's community and/or Nation
- Relationships between communities and/or Nations

Research is Ceremony
Wilson, S. (2008). Research is ceremony: Indigenous research methods. Winnipeg, MB: Fernwood Publishing.

Wilson proposes an Indigenous research paradigm emphasizing relationships in this highly readable text. Chapter 6 focuses specifically on relational accountability.

Large or Small Group Discussion:
What do you consider key elements of relationship building? How will you enact this in your project?

Reflection*:*
Imagine a filmmaker is creating a documentary about a story that is important to you; perhaps a film about something that happened to you or a family member. How would you want to work with the filmmaker? What might make you feel comfortable or uncomfortable about the experience?

Protocol and Gifts

For Indigenous peoples, gifts and/or protocol are an important way to connect and communicate with all our relations and participants in a good way. Not all Indigenous peoples use protocols, and so gifts can be used in some circumstances. Protocols are used to guide ethics and behaviour, and demonstrate respect (Baydala et al., 2013; Australia & New Zealand School of Government, n.d.). Protocol is context dependent: it varies according to where you are and who are you are engaging with. In their 2017 article, Williams et al. describe embedding Māori cultural protocols into a research study investigating the potential of digital storytelling to explore Indigenous pallitative care. The authors found that the pōwhiri (formal welcoming protocol) "exchanged a hierarchical positioning of people for a collaborative one" (p. 7).

In some cases, learning and following protocol is part of relationship-building. If you decide to follow protocol, talk to your team and ask what is expected. Plan ahead, since you may need to purchase supplies like loose tobacco or meet in a space where smudging is permitted. In some cases, you may participate in a formal ceremony such as a sweat lodge or pipe ceremony. In other cases you may use protocol to initiate a direct, one-on-one relationship with an Elder that you are working with. These are just a few examples of protocol - Indigenous team members will guide this work.

Learning about and practicing protocol is one way to formally recognize relationships and responsibilities. Further on in the guidebook we will discuss other formal approaches, such as partnership agreements, Memorandums of Understanding (MOUs), as well as legal and technical considerations.

After completing early stages of relationship-building involving gifts of protocol and discussions about the goals and hopes of the project, the We are All Related AR project formally commenced with a sweat lodge ceremony, September 2017 in Saddle Lake Cree Nation. The sweat was led by Dr. Diana Steinhauer, a Saddle Lake Cree Nation Knowledge Keeper, and University of Alberta team members made offerings of tobacco and print. In all meetings with Diana and other Indigenous advisors, the university team offered tobacco where appropriate and in accordance with Cree protocol. The team worked together to ensure the project was done in a respectful and reciprocal way, and that protocol and documentation for both Cree and university requirements were met. Upon the conclusion of this phase of the project in January 2019, the team will hold another ceremony.

Elder Protocol and Guidelines, University of Alberta[4]
This page discusses the meanings of the name and role of Elder, and links to a guide to Elder protocol from the University of Alberta.

Blue Quills Cultural Sensitivity Training[5]

Let's Find Out Podcast, Episode 9: A Lesson in Protocol [6] [49 min, 55 sec.]
Former Historian Laureate Chris Chang-Yen Phillips and Edmontonian Nathan Smith have a question about Indigenous foods. They consult CJSR's Jodi Stonehouse to learn about how to ask cultural questions respectfully and later meet with Elder Jim O'Chiese.

4 https://www.ualberta.ca/toolkit/communications/aboriginal-elder-process
5 http://www.bluequills.ca/cultural-sensitivity-training/
6 https://letsfindoutpodcast.com/2017/05/04/episode-9-a-lesson-in-protocol-2/

2.6 Accountability in Co-Creating Stories

A project team shares responsibility and accountability to a storyteller regarding how they and their story are portrayed (Waycott, Davis, Warr, Edmonds, & Taylor, 2016; Gubrium, Hill, & Flicker, 2014). Communication and consent are essential to this process, and must be practiced in an ongoing way (Carlson et al., 2017; Iseke & Moore, 2011; Schurer et al., 2015). Consent includes approval of ownership and access rules, such as how a final story is shared, and with whom. Writing about collaborative film-making, Carlson, Rowe, Zegeye-Gebrehiwot & Story (2017) describe showing participants the individual clips that they appear in, for verification and approval. Later, they showed participants a draft of the entire film, to demonstrate the context that the clips appear in.

The Oral History Centre's nindibaajimomin digital story guides (2014) refer to different levels of consent. These include: having a participant agree to participate, securing approval of the story, and asking for approval of how the story will be shared.

When creating the story, there may be levels or stages of consent regarding issues such as:

- Participating in the story-making project
- What information to share, and how
- Approval of the final draft of the story
- Whether the audience will be the open public or a closed audience
- If the story will be made available online
- Communication materials - media coverage, articles, social media, and more.

Community-based Indigenous digital storytelling with Elders and youth. [1]
Iseke, J., & Moore, S. (2011). Community-based Indigenous digital storytelling with Elders and youth. American Indian Culture and Research Journal, 35(4), 19-38.

A situated practice of ethics for participatory visual and digital methods in public health research and practice: A focus on digital storytelling. [2]
Gubrium, A. C., Hill, A. L., & Flicker, S. (2014). A situated practice of ethics for participatory visual and digital methods in public health research and practice: A focus on digital storytelling. American Journal of Public Health, 104(9), 1606-1614.

1 http://www.ourelderstories.com/wp-content/uploads/pdf/CommunityBasedIndigenousDigitalStorytelling_2011.pdf
2 http://www.academia.edu/23540817/A_Situated_Practice_of_Ethics_for_Participatory_Visual_and_Digital_Methods_in_Public_Health_Research_and_Practice_A_Focus_on_Digital_Storytelling

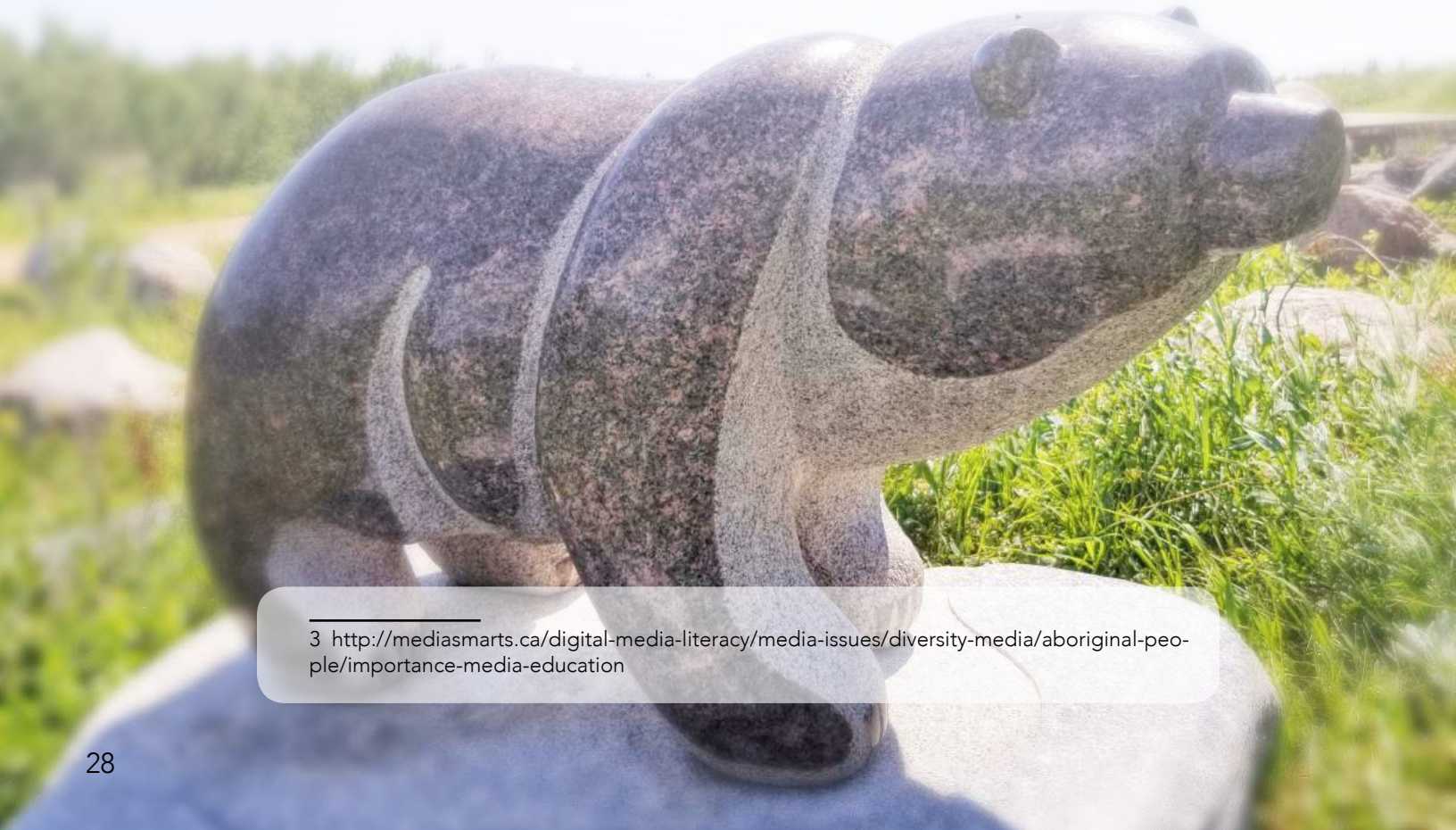
Representation

Representation refers to the ways that Indigenous peoples have been and are portrayed in media such as literature, news, movies, and images. The ways that Indigenous peoples are represented can often be inaccurate, or rely on tropes or stereotypes (Iseke & Moore, 2011).

> *"[I]t is important to (re)member that Aboriginal people have always been involved with cultural production, representing ourselves and our world views in various texts including stories, art, and ceremony. It was and continues to be the violence of colonization that created conditions wherein Aboriginal people lost the power to control the ways in which dominant society constructs and interprets images of Aboriginal people." Dion, 2004, p. 65*

> *"Anyone with knowledge of the various Aboriginal cultures will pick out outrageous and often amusing inaccuracies—tipis where longhouses were used, horses where foot-and-canoe travel was the norm, feather headdresses on the Pacific coast. Distinctions in dress, language, abodes and beliefs of the many Aboriginal cultures are often ignored in favour of a shorthand that "speaks" to the audience. This may be due to laziness, ignorance or the desire to use visual props that will be recognized by audiences and visually arresting onscreen."*[3]

With collaboration and respectful practices, co-creating stories can help ensure stories are shared with proper consent, protocol, and representation.



3 http://mediasmarts.ca/digital-media-literacy/media-issues/diversity-media/aboriginal-people/importance-media-education

Reel Injun film (1 hr 26 minutes)[4]
Cree filmmaker Neil Diamond explores different ways that Indigenous peoples have been represented in film. These range from silent films starring Indigenous peoples to stereotypes with non-Indigenous movie stars, 'white saviour' narratives, and modern Indigenous filmmakers. Includes interviews with actors, activists and film historians.

Reporting in Indigenous Communities[5]
Created by CBC reporter and professor at UBC School of Journalism, Duncan McCue, Reporting in Indigenous Communities offers helpful information and materials for journalists working in this area. The resources available on the website can apply to a range of contexts, including your AR stories.

Appropriation

When creating stories representing Indigenous cultures, there is a risk of appropriation. Cultural appropriation is when one culture takes material from another culture for their own purposes or benefit, frequently losing the cultural

4 http://www.reelcanada.ca/film/reel-injun/
5 http://riic.ca/resources/

materials' context or significance in the process. When using cultural material from another culture there is a risk of disregarding sacredness and meaning, such as wearing a headdress to a concert. Other cultural appropriation may reinforce stereotypes, as seen in halloween costumes.

Often there is a power imbalance where the culture being appropriated is at risk of exploitation. With cultural appropriation, persons with greater privilege may benefit from cultural elements that are or were prohibited or penalized for persons in more marginalized cultures. For example, Black women may be penalized for traditionally Black hairstyles (Cauterruci, 2016), while non-Black women may be seen as stylish for wearing them. Non-Indigenous peoples may profit from making and selling dream catchers or other other cultural items without the right context or teachings, while Indigenous peoples may be discriminated against for practicing their own cultures.

Care needs to be taken to ensure that the AR stories are told in a good way and do not contribute to cultural appropriation. Co-creating stories with Indigenous storytellers, knowledge keepers and Elders will help ensure cultural material is not shared inappropriately or without consent.

Reflection
Cultural appropriation is a complex and controversial topic. Take time to consider where your own opinions lie on using materials from other cultures, and why you have those beliefs or opinions.

Group or Class Discussion
How might norms of sharing digital content (e.g. reposting images, sharing videos, or using content found online for other purposes) affect the risk of appropriation?

Cultural Appropriation v.s. Cultural Appreciation video (3m38s) [1]
Rosanna Deerchild with CBC's Unreserved talks about halloween costumes and the difference between cultural appropriation and cultural appreciation.

Don't Cash Crop on My Cornrows (4m29s)[2]
Actress Amandla Stenberg discusses black culture and appropriation with a classmate for a history class, juxtapositioning the use of black culture in music and fashion with the Black Lives Matter movement.

Think Before You Appropriate[3]
This user-friendly guide discusses how to avoid appropriation, and the benefits of collaboration.

1 https://www.facebook.com/ cbcunreserved/videos/1302918419732348/
2 https://www.youtube.com/watch?v=O1KJRRSB_XA
3 https://www.sfu.ca/ipinch/resources/teaching-resources/think-before-you-appropriate/

But Why Can't I Wear a Hipster Headdress?[4]
Dr. Adrienne Keene addresses typical responses from people who don't understand why it's not okay to wear a headdress.

2.7 Project Governance

For the purposes of creating an AR story, project governance refers to the responsibilities of each party involved in creating the story, and how decisions are made throughout the project. For example, before the project begins, the team may fulfill different requirements, such as a ceremony (to follow Indigenous protocol) and an ethics application (to fulfill institutional research requirements). The team should also inform elected leadership (Chief and Council) of any activities taking place on the Nation's territories. Governance considerations are ongoing and continuous throughout the project.

4 http://nativeappropriations.com/2010/04/but-why-cant-i-wear-a-hipster-headdress.html

The application of OCAP® principles (Schnarch, 2004) are recommended for research with Indigenous peoples. First Nations developed these principles as a means to support self-determination in the pursuit and application of research. Importantly, the principles address themes advocated for by First Nations for years - and reflect the unique context of each First Nation or region, whom will interpret and implement the principles according to their situation. The OCAP® principles are:

- Ownership - who owns the data?
- Control - who controls the data collected or generated?
- Access - who has access to the data?
- Possession - who stores and stewards the data?

These principles will be significant to your AR story project. Who will own the story? Make decisions about it? Decide who gets to access it? Store and maintain the digital content after the story is created?

The National First Nations Information Governance Centre provides information, research, training, data collection, analysis, and dissemination services to First Nations at the community, regional and national levels. Based in Ottawa, the Centre is also involved in supporting the development of regional centres (including one here in Alberta) that serve the strategic First Nations information and research needs, as determined by each of the participating regions. This organization can be a helpful resource for more information about, and support for, OCAP® principles. As list of affiliated organizations is available here: https://fnigc.ca/about-fnigc/member-organizations.html

We will talk more about the governance of your project in the "Creating the Story" and "Sharing and Stewarding the Story" sections of this guide.

Governance was a key component of the We are all Related AR project. Cognizant of risks of extraction and appropriation, our team carefully discussed how to create and steward AR stories so that cultural knowledge remains in the control of Saddle Lake Cree Nation representatives. To this end our team adhered to both Cree protocol (such as ceremony and tobacco offerings) and university procedures (including ethics and documentation of project decision points). We drafted and revised a project agreement that was discussed and reviewed on an ongoing basis by all project parties, including the University of Alberta, representatives of the Saddle Lake Cree Nation, and Wikiup, an AR platform organization. The project agreement includes principles regarding ownership, process, access, sustainability, revenue, and communications. As well, the agreement defines the roles of the different parties. In developing the agreement, we drew upon the principles of OCAP® and met with the Alberta First Nations Information Governance Centre to request their advice and feedback. We also sent a letter to the Saddle Lake Cree Nation Chief and Council to inform them of our project, which is taking place on Saddle Lake Cree Territories. This letter briefly explained the project, funders, team members (Diana and Stewart) and ethics approval, and was important to provide as a customary courtesy.

Alberta First Nations Information Governance Centre[5]
The Alberta First Nations Information Governance Centre (AFNIGC) will promote, protect and advance the First Nations´ Ownership, Control, Access and Possession (OCAP®) principles, the inherent right to self-determination and jurisdiction in research and information management. Their website includes templates for privacy law and data sharing.

On thin ice: Managing risks in community-university research partnerships [6]
Ball, J. (2014). Learning and Teaching Community-Based Research: Linking Pedagogy to Practice, 25-44.

Ball discusses community-university research partnerships in the context of her work with Indigenous communities, particularly the probability of unplanned change and the merit of a Memorandum of Agreement.

2.8 Activity 3: Draft a governance agreement for your project

At this early stage of your project, develop a list of considerations that will shape the co-development of a governance framework. Consider this a 'living document' (one that continues to change based on feedback and developments in the course of a project) for now. This document which can be finalized once everyone in the team is in agreement with what it represents. We recommend developing a series of questions that address issues such as purpose, duration, access, roles, feedback, public dissemination, rather than writing a completed agreement. Consider the following questions when deciding upon the governance of your AR story:

- *Who are the parties involved?*
- *What is the purpose of creating the AR story for each party?*
- *What protocol is required?*
- *What institutional policies or permissions are required?*
- *How will the parties communicate and make decisions?*
- *Who will "own" and be responsible for the story, once created?*
- *How will you ensure the story doesn't contribute to the extraction of Indigenous cultural content?*
- *Does the platform (website, app) you are using own the material once it's uploaded?*
- *Who approves edits and the final version of the story?*
- *Where will the digital content associated with the project be stored, and for how long?*
- *How will other project materials, such as unedited video or audio, transcripts, and consent forms be stored, and for how long?*

5 http://www.afnigc.ca/
6 http://www.ecdip.org/docs/pdf/CBR_Chapter%20J%20Ball%20On%20Thin%20Ice%202014.pdf

- *Who will steward and maintain the story as technology evolves?*
- *Will there be any communications materials regarding the story? How will the team organize presentations or publications, for example? Who approves the content and how are questions of authorship addressed?*

Appendix A provides a Memorandum of Agreement framework from the iPinch project that you can use as a starting point for this work.

2.9 Examples of Indigenous Digital Content

Digital Bundles

- The Four Directions Teachings website offers "digital bundles" of Indigenous knowledge, and includes a Teacher's Guide http://www.fourdirectionsteachings.com/index.html

Digital Storytelling

- Voices of Amiskwaciy creates and shares local Indigenous content online https://voicesofamiskwaciy.ca/
- Digital stories created by Saddle Lake First Nation and University of Toronto http://www.lanawhiskeyjack.ca/uncategorized/digital-story-resources-on-nehiyaw-teachings/

Podcasts & Radio

- Indian & Cowboy is an Indigenous media platform with several podcasts http://indianandcowboy.ca/
- Acimowin showcases Indigenous media and news on the local radio station CJSR https://www.cjsr.com/shows/acimowin/

Video

- Tuesday Teachings with CBC Unreserved: 2 minute videos that "share the wisdom and knowledge of Indigenous elders and knowledge keepers throughout Canada" #TuesdayTeachings https://www.facebook.com/pg/cbcunreserved/videos/?ref=page_internal
-

Videogames

- Never Alone was created with Alaskan Indigenous storytellers and Elders http://neveralonegame.com/
- Elizabeth LePensée has created a number of Indigenous videogames and comics http://www.elizabethlapensee.com/#/games/

Digital Libraries

- The Blackfoot Digital Library includes images, audio, video, and documents https://www.blackfootdigitallibrary.com/
- Digital Library North includes photos, video, language lessons, and more. https://inuvialuitdigitallibrary.ca/

2.10 Activity 4: Choose a topic for your AR Story

Now that you have developed some background and planning resources, including a literature review plan, governance framework, and list of logistical considerations, you can start thinking about the topic your team will cover in your AR story. We stress that you are not expected to be an expert in AR content production - rather, feel free to innovate and experiment with this new storytelling form. The AR content you will create may be organized around your relationship with the Indigenous partner(s) you are working with.

Your team will continue to research and develop your topic in more detail as you move through this guidebook. At this early stage, work together to choose a general theme and develop a brief story concept (150-200 words at most). You will be workshopping that concept throughout this guide, so keep it short for now. Once your team has chosen an appropriate topic for your story, talk through it again. Encourage comments and questions with reference to the issues and examples discussed in this guide. What are the strengths and weaknesses of the topic? How can you work together to ensure it is told in the best way?

CREATING THE STORY TOGETHER

This section reviews how to create your AR story. We will discuss how to collaborate respectfully to create the story, introduce different types of AR content and story hosting platforms, and cover the steps in recording your story.

Creating the Story Together Contents

3.1 Co-Creating: Collaboration, Communication, and Consent

In the previous section, "Laying the Groundwork", we discussed the necessary starting points for co-creating AR stories with Indigenous peoples. We covered the importance of relationships, key factors involved in building and sustaining relationships, and relational accountability. These governance principles will continue to guide you throughout your project.

> *"The key to working in a culturally appropriate way is to collaborate with Indigenous Peoples at the centre of the work. Collaboration ensures that works do not speak for Indigenous Peoples. It ensures that works are Indigenous Peoples speaking. Only Indigenous Peoples speak with the authority of who they are, connected to Traditional Knowledge, their Oral Traditions, their cultural Protocols, and their contemporary identity. Collaboration is crucial in achieving authentic content, and in demonstrating respect for the complexity and individual nature of Indigenous Peoples" (Gregory Younging, 2018, p. 31).*

To work in collaboration is to see each project partner and team member as an equal and valued contributor. This ties into the concept of reciprocity introduced in the beginning of the Laying the Groundwork section. Reciprocity is one of the 4 R's proposed in respect to First Nations and post-secondary education (Kirkness & Barnhardt, 1991). The concepts are now often applied to research projects with Indigenous peoples, and here we can apply them to our story-making process. Reciprocity is to ensure the process and final outcomes benefit all partners, and value the contributions of all partners (Kirkness & Barnhardt, 1991). This is our goal for the storymaking process and final AR content.

Consent

How will your storytelling project include consent? As we have been discussing, consent will likely be required on an ongoing basis for different pieces of the project as they emerge.

To determine appropriate consent, follow the lead of Indigenous Elders, Knowledge Keepers, and storytellers. For example, accepting tobacco offered with a request is one way, but different Nations may have different protocols.

You should also inform elected leadership (Chief and Council) about your project, and any work taking place on the Nation's territories. The letter should briefly explain your project, funders, team members and ethics approval.

Western forms of consent usually involve documentation such as consent forms, release forms, and/or waivers. The kind of consent documentation you require will depend on the Nation or individual(s) you are working with. If you are creating a story with friends or family on your own behalf, documentation may not be necessary. If you are creating a story as part of an educational institution, documentation is almost certainly required. Creating a story as part of a research project will require ethics approval, including an information letter and consent form for participants to sign. Sharing the video in a public form (such as an

AR platform) may require media release waivers as well. Additionally, projects involving youth and children under the age of 18 years often require parental or guardian consent.

The nindibaajimomin: digital storytelling project for children of residential school survivors project offers a comprehensive example of consent documentation. The project provides guidebooks for story workshop facilitators, including consent forms. The story release form includes options for using the story in multiple venues: in reports, on websites, in the media, in presentations, in the news, in publications, and for educational purposes. For each purpose, participants can choose to provide consent or not, with an option to indicate any exceptions. Participants can also document on the form whether or not to have their name shared with their story. This thoughtful and comprehensive approach to consent respects how different participants may consent for their story to be shared in different ways.

Consent and approval will be required for different stages of your project. For example, you might consider issues of consent for participants in these areas:

- Whether to participate in the storytelling project
- Choosing the story to share and if so, with what corresponding permissions
- How to tell the story
- How to record the story
- How to share the story in AR
- Who to share the story with
- Review and approval of communication materials about the story
- Where the digital story data is stored
- How the digital story data is maintained and protected

nindibaajimomin: a digital storytelling project for children of residential school survivors[1]
Through workbooks for facilitators and storytellers creating digital stories, the nindibaajimomin guidebooks include forms for participant consent, use of video-recordings, and digital story release.

Alberta Innovates: ARECCI Ethics Guideline Tool[2]
In Alberta, ARECCI offers an ethics screening tool for projects involving people and their data. An online screening tool will help assess risk level, and a free Second Opinion Review will review your project design to identify areas of risk and suggest mitigation options.

Reporting in Indigenous Communities[3]
An online educational guide for journalists reporting in Indigenous communities, from research and pitching stories to presenting stories. A reporter's checklist and resources are also included.

3.2 Activity 5: Build a plan to manage ongoing communication and consent

As noted earlier, ongoing communication and consent is critical to effective and respectful collaboration. Determine how you and your project partners will stay connected and communicate effectively. A written plan can help manage these ongoing activities. Here are some considerations for effective communication, which you can use as the basis for discussion with your team:

Real-time discussions - will your team meet in person, conference call, and/or video calls for real-time discussions?
Email - what are the expectations of team members for responding to email communication?
Online Collaboration Tools - what are the group's preferences for online communication and documentation tools, such as Google apps or social media platforms? What are the group's requirements for accessibility and privacy when selecting those kinds of online communication platforms?
Documentation - how will ideas and decisions such as meeting notes, task lists, and timelines be documented, shared, and stored?
Decision-making - how will decisions be made? Decision-making can be challenging in collaborative projects.

As noted in the previous section, consent around project decisions is multi-faceted and ongoing. Below are some considerations for all partners to spend time discussing, in order to develop a plan to guide ongoing check-ins and consent. Discussions about collaboration and consent tie in to issues of governance: decision-making, roles and responsibilities related to the

1 http://nindibaajimomin.com/workbooks/project-work-plan/
2 aihealthsolutions.ca/news-and-events/publications/arecci-ethics-guideline-tool/
3 http://riic.ca/

production, archiving and sharing of the AR story. Answers to these questions may be helpful in reviewing and refining the project governance document that you started in Activity 3.

Intention - *Why do you want to co-create and share a story? Who do you wish to share the story with? As the keeper of cultural knowledge, let the storyteller be your guide for which stories to share, and how. Do not assume all stories can be made public.*

Ownership - *Who will own the AR story? How will you ensure cultural content continues to be owned by communities and/or Knowledge Keepers?*

Protocol, Permissions, Ethics, and Other Requirements - *Is protocol or ceremony required to share the story? Do you need to formally request a ceremony to document a story or teaching? If you work with a post-secondary institution and are conducting research, do you require ethics approval? Are you incorporating images or other materials from third-party sources, and if so, do you require copyright approval? Do you need to write a letter to Chief and Council to inform them (or in some cases, request permission) that you are doing work on their territories?*

Recording - *How will you record your story? Through written description, audio, images, video, animation? Are there some things such as ceremony or protocol you should intentionally not record, or only record in certain media?*

Data Management and Stewardship - *Where will the digital data be stored while you create the story, and afterwards? What is your plan for data stewardship - will you hold the digital data once the story has been edited, or will you turn it over to the Knowledge Keeper / Nation? How will the digital data be maintained and protected in the years to come?*

Editing - *How will you edit your story? What software will you use? Will you edit all together as a group or will you have a group discussion to agree on how you would like to see the story and then have designated editor(s) prepare drafts for the group to review and approve?*

Additional Content - *How will adding extra content such as text, photos, audio or video clips in your AR story be approved by project partners?*

AR Platform - *Where will you host your AR story? Are there any considerations of cost, ownership, and maintenance for the platform you selected? How about revenue generation and copyright?*

Audience - *Will the story be shared with the public? Does it have conditions of use, and if yes, how will you address those?*

Communications - *How will media, presentations, articles, and other communications materials be developed and authored? Who will approve communications materials? Have you secured permission to make these materials public?*

As noted earlier, agreement on project background, approach, team roles and responsibilities are also captured using a Memorandum of Agreement.

Small Group Discussion or Individual Reflection
Discuss in a group, or spend some time reflecting on, your response to seeing these lists of planning considerations. Do they feel justified or are they overwhelming? Why do you think you might feel that way? How will you attend to all the considerations, particularly in a group context?

Indigenous Arts Protocols (10m7s video)[4]
This video, commissioned by the Ontario Arts Council, features Indigenous artists, Elders, and academics discussing cultural appropriation, protocol, and respectful relationships including reciprocity. A transcript of the video is available at http://www.arts.on.ca/oac/media/oac/Video%20Transcripts/Indigenous-Arts-Protocols.pdf

Consensus Decision-Making[5]
Consensus can be an inclusive way for a team to come to a decision together. Consensus does not necessarily mean that everyone enthusiastically agrees about what is the best decision. There are different levels and methods of reaching consensus, described in this Wikipedia article.

4 https://www.youtube.com/watch?v=c6VuHJi6O0Q
5 https://en.wikipedia.org/wiki/Consensus_decision-making

Collaborative Projects and Memoranda of Agreement (MOA)[6]

Pathways and Protocols: A Filmmaker's Guide to Working with Indigenous People, Culture and Concepts
Janke, Terri. 2009. Pathways and Protocols: A Filmmaker's Guide to Working with Indigenous People, Culture and Concepts. Australian Government and Screen Australia (specifically section 3.8 and section 4): *www.screenaustralia.gov.au/filmmaking/Indigenous_protocols.aspx*

6 http://www.sfu.ca/ipinch/sites/default/files/resources/fact_sheets/ipinch_moa_factsheet_jan2015.pdf

- ***Intentions*** *- We had two primary intentions in our AR story. First, we wanted to work through the process of collaborative AR storytelling to explore how it might build and support Indigenous-settler relations. Second, we wanted to share information about the significance of Treaty and the Treaty 6 marker bears with a public audience. The story concepts were co-developed by the team, with cultural information shared by Knowledge Keeper Dr. Diana Steinhauer and sculptor Stewart Steinhauer.*
- ***Ownership of and Access to Project Resources*** *- We also divided ownership of project resources according to the two parallel intentions noted above. We documented this arrangement in our project agreement. The team agreed to document and share the process of co-creating AR stories as an Open Educational Resource (via Creative Commons). However, copyright (ownership) for the digital content created through the project was transferred to Saddle Lake Cree Nation team members through a written agreement (expressed in the project consent forms). The team also agreed to grant public access to the AR stories developed through the stories, through a Creative Commons license.*
- ***Protocol, Permissions, Ethics, and Other Requirements*** *- As mentioned previously, our project formally began with a Saddle Lake Cree sweat lodge ceremony led by Knowledge Keeper Dr. Diana Steinhauer with offerings of tobacco and print. We also created a living project agreement that was finalized after several revisions. We received university ethics approval for data collection associated with this project, including for the AR stories we developed. We also sent a letter to the Saddle Lake Cree Nation Chief and Council to inform them of our project, which is taking place on Saddle Lake Cree Territories. This letter briefly explained the project, funders, team members (Diana and Stewart) and ethics approval, and was important to provide as a customary courtesy. Consent and approvals were ongoing: team members met regularly and shared drafts of story materials and communication materials for consensus approval before distribution.*
- ***Recording*** *- For our project, Diana advised the team that while the story would be video or audio recorded, protocol and ceremony was best described with a written summary and not through a video or audio recording.*
- ***Editing*** *- We worked with a videographer to film and edit the demonstration stories. Team members provided direction on story concepts, and rough cuts of story materials were shared with the team throughout the editing process.*
- ***Additional Content*** *- The entire team reviewed and approved all additions to the story.*
- ***AR platform*** *- Our project initially involved the AR app Wikiup, a social enterprise owned by Vancouver Native Housing Authority that was designed to share Indigenous knowledge. However, the app's technical capabilities (such as its ability to scan marker images to display AR content) were still in development at the time of our project. As an alternative we chose to use the commercial app HP Reveal (formerly Aurasma), which has been used extensively in education settings. HP Reveal is user-friendly and provided the required scanning capabilities to interact with the Sweetgrass Bear sculpture. However, it offers less ownership and control over the AR stories and content that we upload to it. As a third option, we did approach an AR company to produce a customized app for our purposes. However that option was beyond the scope and budget of our current project.*

- ***Audience*** *- Our audience for the digital AR stories is the general public. Our audience for these OER guidebooks are learners and teachers from all backgrounds.*
- ***Stewardship*** *- As outlined in our project agreement and ethics application, our AR stories will be housed on the HP Reveal app for public viewing. In December 2019, we will turn over all "raw" (unedited) digital recordings associated with the project to the Saddle Lake Cree Nation team members for stewardship. We are discussing other applications for the recordings, such as short videos that Stewart may use in his teaching and public outreach activities.*
- ***Communication*** *- We used in-person and telephone meetings. Meetings were held onsite at the University of Alberta and in Saddle Lake at regular intervals. Teleconference meetings substituted when weather or scheduling conflicts prohibited planned site visits. For University of Alberta researchers, a shared drive in Google Apps was used to store and collaborate on materials such as documents, presentations, and drafts of this guide. Drafts of materials for public audiences (e.g. these guidebooks, presentations, articles) were distributed by email, reviewed and approved by all team members.*

3.3 Respectful Knowledge Sharing

As illustrated throughout this section of the guide, your role as a story co-creator requires diligent attention to many considerations and details. Discussing ethics for a digital storytelling project where people create video slideshows focused on a personal narrative, Gubrium, Hill & Flicker (2014) discuss what they call the "power of shaping". For example, a storytelling facilitator may suggest including or cutting content from a story during editing that inadvertently influences the final story format towards the facilitator's interests rather than the storyteller's personal narrative. They argue that in such storytelling, "reflexive attention to issues of power and a sense of cultural humility are key to excellent facilitation. [The] Storyteller's well-being and autonomy of voice should be at the center of a project" (p. 1607). As stressed throughout this guide, relationship-building is critical.

Access rules are an important consideration in this work. As we have been discussing, not all stories are meant to be recorded and openly shared. There are expectations about what is to be kept kept private, what is shared confidentially, and what we might be comfortable recording and sharing widely. Some stories and knowledge may have conditions of use, be for the First Nation only, or need to be earned (King, 2003; Wilson, 2008; Local Contexts, n.d.). There may also be differing opinions in the same First Nation about what information to share; some people may advocate for recording traditional knowledge so it is not lost, others may prefer to adhere to teachings which favour oral transmission between the generations and do not permit recording.

For projects interested in incorporating AR storytelling with Indigenous Knowledge, certain ethical requirements are necessary. In response to a history of appropriation and exploitation of Indigenous Knowledge, there are now several ethical frameworks for conducting research with Indigenous communities, such as

the Tri-Council Policy Statement chapter on Research Involving the First Nations, Inuit and Métis Peoples of Canada (2014). Some communities have created their own research frameworks, like the Kahnawake Schools Diabetes Prevention Project Code of Research Ethics (2007). As well, Indigenous educational institutions such as Blue Quills University have their own ethical guidelines. These comprehensive research ethics frameworks help ensure research conducted with Indigenous peoples includes community engagement and reciprocity, and is conducted in a manner respectful of community customs and knowledge systems.

Decolonizing methodologies: Research and indigenous peoples by Linda Tuhuwai-Smith [1]

With over 15,000 citations, Decolonizing Methodologies is a key text for anyone interested in conducting research with Indigenous peoples.

Ethics frameworks for research with Indigenous peoples and communities

- *University nuhelot'įne thaiyots'į nistameyimâkanak Blue Quills (Blue Quills University) in Saddle Lake Cree Nation has a Research and Ethics page*[2]
- *Tri-Council Policy Statement 2: Chapter 9* [3]
- *Kahnawake Schools Diabetes Prevention Project Code of Research Ethics* [4]
- *Negotiating Research Relationships With Inuit Communities, A Guide For Researchers*[5]

1 https://www.zedbooks.net/shop/book/decolonizing-methodologies/
2 http://www.bluequills.ca/research-ethics/
3 http://www.pre.ethics.gc.ca/eng/policy-politique/initiatives/tcps2-eptc2/chapter9-chapitre9/
4 https://www.ksdpp.org/media/ksdpp_code_of_research_ethics2007.pdf
5 https://www.itk.ca/negotiating-research-relationships-guide/

Early in the process of selecting story content for the first We are All Related AR stories, the team discussed sharing a specific story in AR that involved animated images of bears and fire. However, due to considerations regarding the necessary permissions to link that particular story with digital graphic representations, the team decided to pursue other story ideas.

3.4 AR Basics and Types of AR Content

Augmented reality (AR) is a way of enhancing a person's experience of a physical space by layering digital media (images, audio, video, animation) over it. Often this is done through mobile devices, which act as a 'lens' for viewing digital AR content superimposed on an object or setting. This could mean seeing a historic photo of a street layered on top of the current view of it, or listening to an audio guide for a location you are standing in. In Azuma's (1997) widely cited definition:

> *AR allows the user to see the real world, with virtual objects superimposed upon or composited with the real world. Therefore, AR supplements reality, rather than completely replacing it. Ideally, it would appear to the user that the virtual and real objects coexisted in the same space (p. 356).*

A distinction needs to immediately be made between augmented reality apps and geolocative apps. While augmented reality refers to apps that layer digital information over physical spaces regardless of a user's location (e.g. 3d models of furniture in a user's living room), geolocative apps use GPS coordinates to connect pieces of digital content to particular physical spaces where users are located (e.g. a historical guidebook that shows information about a certain building when a user stands near it). In geolocative apps, the physical spaces where digital content is located are called Points of Interest (POIs). In short, AR content developers can choose whether or not to tie their content to certain (GPS-defined) locations.

A glossary of AR terms is provided in Appendix B.

AR Trigger Images

There are three major ways that AR content is triggered for users. First, if an app is geolocative, then walking to the right GPS location can trigger a user's access to AR content.

Second, users can scan visual 'markers' to show computer graphics blending into a real scene: there is an image in the physical world that can be read by a scanner, allowing the computer to calculate the location of a user's phone in relation to the image. Once the position is calculated, it is easy for the app to believably layer digital information on top of a physical scene. Thanks to significant advances in computer visioning algorithms, these 'fiducial markers' can now be anything from scribbles on paper to detailed photographs.

An example of AR trigger images used for the 'We Are All Related' project is provided in Appendix C.

Finally, a new form of computer vision termed Simultaneous Localization and Mapping (SLAM) allows for visual AR without markers. An AR app using SLAM could scan the room the user is in—automatically finding out where walls and furniture are located—then add augmented reality content.

AR Digital Content

Once an augmented reality app has made the link between the physical and digital worlds, a range of content types can be layered on the physical scene (typically the view of a space through a smartphone's camera). These include images, audio, video, 3D models or scenes, and 2D/3D animation.

Images can be shown as a layer in a scene; for example, a blank wall could display a range of murals in AR when scanned by an app. Showing historical views of streets superimposed upon a view of the street as it currently exists is another popular way of using image. Images could also be used to provide peripheral information, e.g. digital images of the preparatory sketches of a painting could be displayed in AR next to the painting.

> Example of AR Images: Finding Alberta[1]
> Engberg (2017) discusses developing the AR app Finding Alberta to share images, audio, and documents about the life of Alberta Viola Roberts, a young black girl taken from St. Croix to Copenhagen in 1905 to be part of a colony exhibit. As users navigate Copenhagen they can visit sites such as Alberta's school, and view a photo of Alberta in her classroom. Augmented reality was selected to share Alberta's story to layer the past and the present, and reflect on colonial and post-colonial Copenhagen.

Audio is the easiest content type to deliver; it simply needs to be turned on or off by the app (behind the scenes) or by the user. Audio tours are the paradigmatic form of audio AR.

> Example of AR Audio: Ashes in the Water[2]
> Indigenous New Media course instructor David Gaertner argues that augmented reality can link students to the land and Indigenous epistemology (2016). He describes the podplay Ashes in the Water, where actors tell the story of Skwxwu7mesh women rescuing settlers by canoe during the Great Vancouver Fire, as "projecting Indigenous presence onto deeply colonized spaces" (p. 497).

Video is an engaging way to display content in AR. Long videos are less well-suited to AR than short clips, as they require sustained attention. Small video clips can be displayed in AR in ways comparable to images: scanning a magazine ad could trigger a promotional video overlayed on the magazine. Project teams should think carefully about the desired user experience when showing videos in AR.

1 https://mw17.mwconf.org/paper/augmented-and-mixed-reality-design-for-contested-and-challenging-histories-postcolonial-approaches-to-site-specific-storytelling/
2 https://www.wlupress.wlu.ca/Books/R/Read-Listen-Tell

Example of AR Video: Nyungar Stories[3]
Irving and Hoffman (2014) investigate the use of AR with Nyungar narratives to foster cultural competency in health sciences students. AR was selected for its ability to link stories to locations and demonstrate layers of meaning and cultural coexistence.

3D models and scenes are most frequently used in AR videogames such as Pokemon Go. In these experiences, the gameworld is blended into the physical one. Alternatively, some card games now support augmented reality that lets their players view 3D models of monsters standing on the cards that represent them.

Example of AR 3-D Modelling: Tuwitames[4]
David Lacho's 2018 thesis focuses on the development of the language revitalization AR application Tuwitames. 3D animated models and audio narrations in Secwepemctsín are activated when users view a corresponding storybook through a mobile device, with English subtitles available for language learners.

Finally, 2D and 3D elements can be animated over AR scenes. The best way to think about this is that 'if it can be done in a video game, it can be done in AR.' Animations could be little narrative cartoons, 3D avatars acting as guides, or 3D

3 https://www.researchgate.net/publication/301692539_Nyungar_Place_Stories_Pilot_using_augmented_reality_for_Indigenous_cultural_sustainability
4 https://davidlacho.com/2017/09/18/tuwitames-developing-an-augmented-reality-storybook/

instructions showing how to repair an object by hand.

> [Example of AR Animation: Indigital Storytelling][5]
> Indigital Storytelling shares place-based animations of ancient rock carvings. Founder Mikaela Jade chose AR "to change the narrative for indigenous cultures around the world so our stories are told at the right time, at the right place, by the right person" (Jade in Walker, 2018, para. 7).

Augmented Reality Platforms

Given its novelty as a technology, there are currently a number of competing platforms for creating and viewing AR content. These run the gamut from back-end software development kits (SDKs) only usable by app developers to user-friendly platforms that offer content editors similar to blogging sites. We identified a number of key considerations when selecting a platform for our project: the user-friendliness of the platform, its technical capabilities, where user data is stored and who owns it (a key concern in all Indigenous projects), and finally the cost of the platform (and whether they are free or cheaper for educational use). Image 1 below illustrates the content creation interfaces on two different AR platforms.

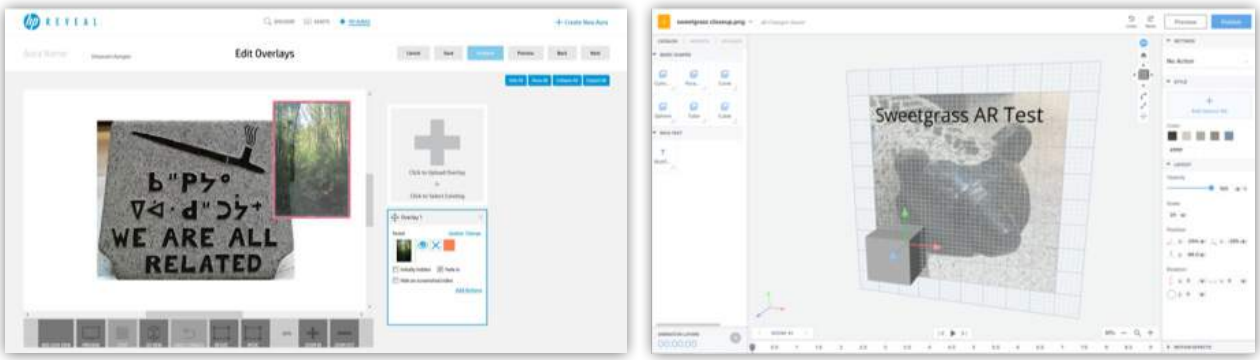


Image 1: The AR content creation interfaces in HP Reveal (left) and BlippAR (right).

In terms of user-friendliness, the easiest platforms offer Content Management Systems (CMSs) similar to blogs, allowing users to upload media files and publish them as viewable AR experiences. Among these, HP Reveal (formerly Aurasma) is currently the most established. Other options include BlippAR, Augment, and Wikitude, and expensive platforms skewed to advertising such LayAR. At the other end of the spectrum are SDKs (software development kits); a team would require a dedicated programmer creating a custom app to use these. In between the extremes are 'middleware' applications: programs for creating programs, such as the Unity video game engine. Unity is widely supported by AR platforms, and while it still requires programming, it is much easier to create an app in Unity than purely from scratch. Popular options include Vuforia, Kudan, EasyAR, and the open-source ARToolkit.

5 https://www.indigital.net.au/

Our project settled on using HP Reveal, given its user-friendly front-end, acceptable terms of use, and low cost (free). We also created a working tech demo using the EasyAR platform within Unity, as this was the setup used by our potential project partner Wikiup. Image 2 below illustrates our EasyAR Unity demo.

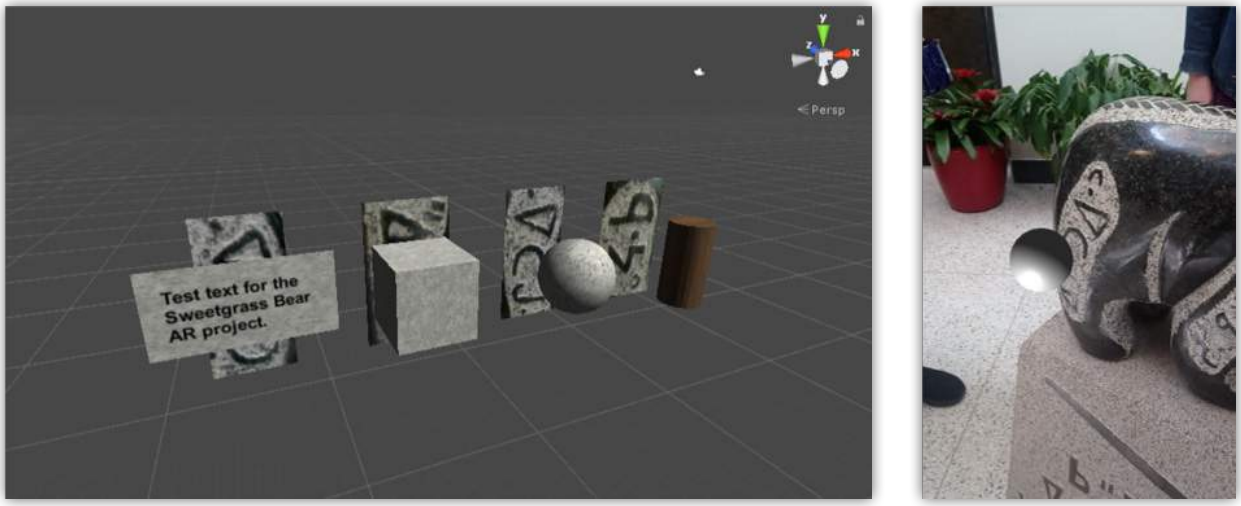
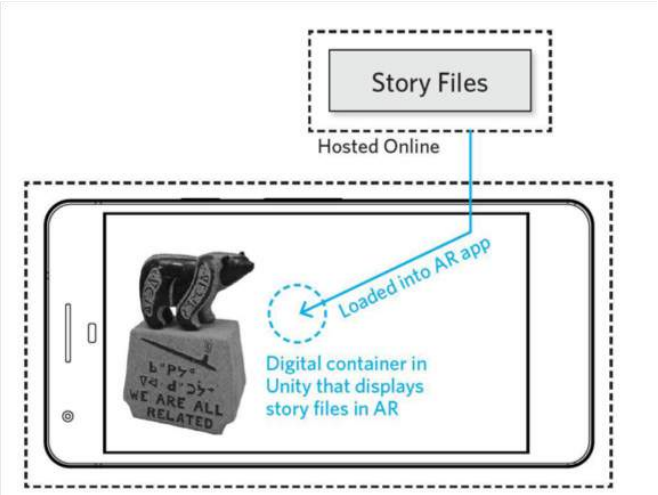


Image 1: The AR content creation interfaces in HP Reveal (left) and BlippAR (right).

The technical abilities of various platforms are quite similar due to companies competing for an edge over their competitors. The major differences are the types of AR content delivery mentioned earlier: different platforms can display different things, from images to 3D models and videos. The style of AR varies too: most platforms are [image]-marker-based, not GPS-based, with Wikitude being the main exception to this. Markerless-AR (SLAM) is a competitive edge to the platforms offering it, so it often requires premium paid subscriptions to use. Finally, it should be noted that Google and Apple have released advanced AR capabilities for their newest devices (ARCore and ARKit respectively), and existing platforms are now integrating features from these packages.



LOADING STORY FILES INTO THE VIEWER APP

Data ownership is a serious concern for Indigenous projects: does an AR platform claim to own a story once it has been placed on their platform? Unfortunately most user-friendly AR platforms host the stories themselves, and may indeed claim ownership to materials housed on their

servers (often located in the cloud). When only an AR SDK is used (on its own, or within software such as Unity), the story data can be stored separately from the AR platform, which is only used for the computer vision algorithms needed to display AR. This model is the most desirable for our project, but since it requires a custom app we were not able to implement it at this time. We are currently exploring opportunities to develop a customized app solution that meets these important requirements.

Finally, the cost of AR platforms varies considerably based on how they are framed by the companies developing them. Unsurprisingly, the 'flashiest' AR platforms are aimed at marketing, and come with a hefty price tag that reflects the large sums that commercial advertisers can afford. Despite this, many platforms want to encourage educational use and offer a high level of functionality with free educational licenses. Whether a platform offers free educational use—and the particular terms of its license—vary considerably across platforms, so we recommend cautiously reading up on this before settling on a platform. At the time of writing, platforms with free educational licenses (with varying terms), included ARToolkit, Augment, BlippAR, EasyAR, HP Reveal, Kudan, and Wikitude. HP Reveal was also free to use for personal use, which is one reason we chose it for our proof of concept.

To sum up, different projects will have different priorities and needs, so it is important to select a platform that matches the needs and capabilities of the project's concept, team, and budget.

As described above, selecting an AR platform required careful negotiation of issues of AR platform capabilities, ownership, storage, and access. Our project considered the AR app Wikiup, but the app's scanning capability was still in development at the time of our project. We also approached an AR company to develop a customized app, but they were unable to produce a solution that met our requirements and budget. Based on these factors, we chose to use HP Reveal, as it had been used extensively in education settings, was user-friendly, and provided the required scanning capabilities to interact with the Sweetgrass Bear sculpture. The HP Reveal app also provided some desired capabilities such as being able to tap an AR overlay to activate additional content.

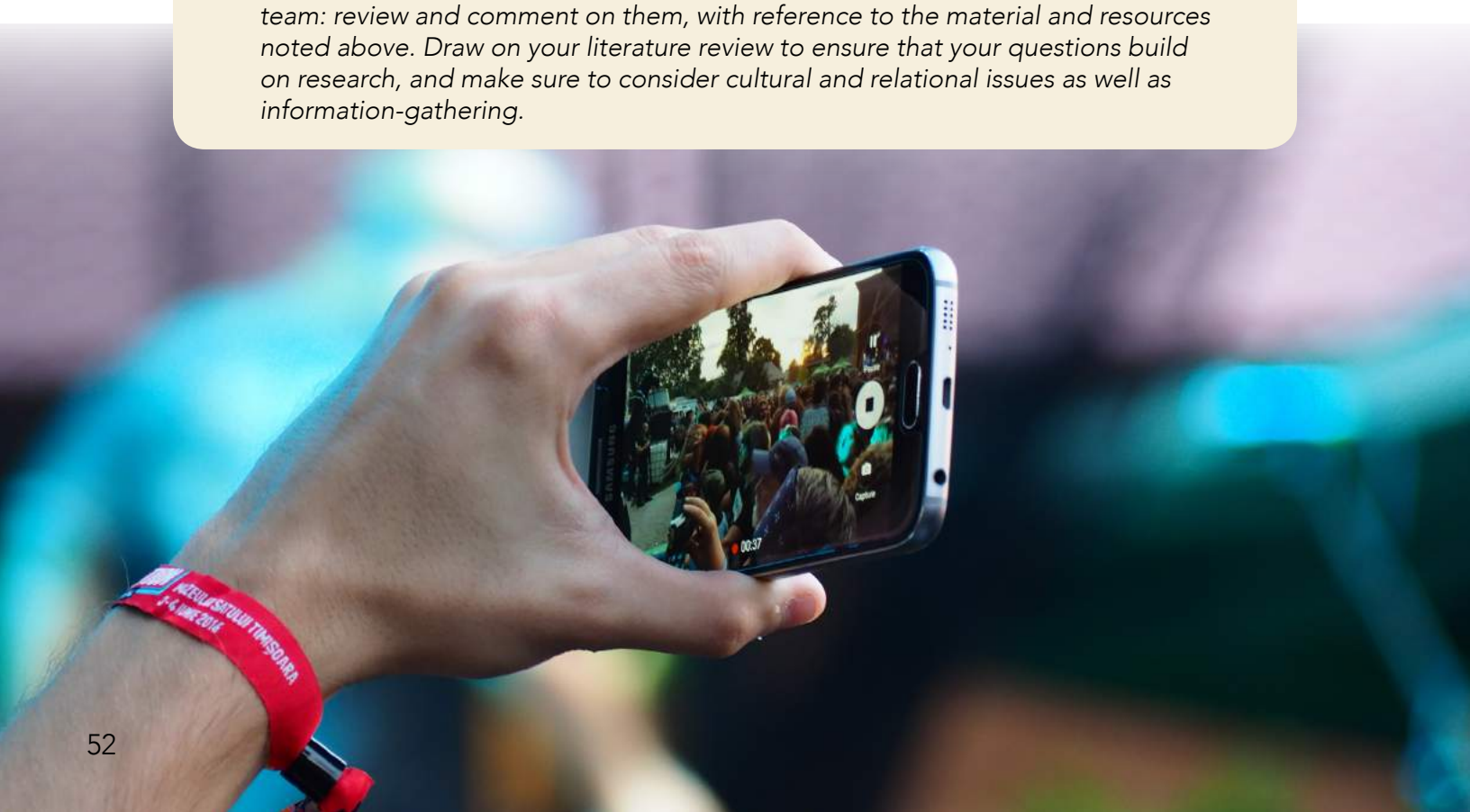
3.5 Activity 6: Develop an AR design concept and set of questions for your story

Building on the concept that you developed in Activity 1, develop an AR design concept for your story, with reference to the resources and information discussed above. Share your revised concept with your project team. Encourage team members to ask questions about it. As AR stories can take many different forms, it is important to plan out your AR story. Here are some things to consider in your AR design concept:

- *What format would you like your story to be? Audio, video, text, images, or animation?*
- *What AR platform will you host your story on?*
- *Will your story be scripted or unscripted? This may depend on the desires of the Elders, Knowledge Keepers or storytellers you are working with.*
- *What research information can inform your story? How does your literature review support and inform your AR story?*
- *What source materials do you already have? What are the copyright and licensing requirements of those materials? What new materials will you need to create?*
- *Where, when and with who will you record?*
- *What equipment will you need? (A sample equipment and supplies list is provided at the end of this section.)*
- *Who will operate the equipment? Will one person be assigned a role (e.g. camera operator) for the entire project, or will team members switch roles occasionally?*

Next, prepare a list of questions to guide your story planning. Interviews are often used in documentary-style filmmaking or storytelling, and so we chose them as one approach to guide your AR storytelling. An interview guide can be helpful when interviewing to make sure you cover all the concepts and ideas you want to include. Ask questions that encourage open answers, and try to avoid yes/no questions. If participants mention something intriguing, use a question prompt to discuss that idea, story, or concept further, but be cautious of getting too off-track.

Your interview guide can be shared with participants beforehand so they know what topics you would like to discuss. Share your questions with your project team: review and comment on them, with reference to the material and resources noted above. Draw on your literature review to ensure that your questions build on research, and make sure to consider cultural and relational issues as well as information-gathering.



3.6 Creating Content

This section provides information and resources that will help in your recording process. It assumes that you will be developing AR content using audio or video materials that are revealed through a trigger image or geographic location. Feel free to experiment and use other storytelling techniques! These are only suggestions, and we are very interested in hearing how others are innovating with this emerging form of digital media.

Video Recording

Smartphones are a good option for recording videos for your AR story. Here are some tips when planning to record video using your personal smartphone:

- Make sure your device is fully charged. Backup battery chargers are a good option.
- You may need lots of storage - Consider how much storage space is on your device. If there isn't much storage on your device, consider other options like cloud-based storage or downloading footage as you go. If possible, bring external storage such as laptops or SD cards. A note that iPhones are more difficult to synch with an external device that has not already been paired. As a reference point, our footage for the We are All Related Summer 2018 videos required 23 GBs storage.
- Record in landscape mode consistently (with your phone turned on its side so it is horizontal)
- For simple videos, using 1 device is best. Using extra devices adds extra angles, but also requires significantly more editing time.
- A lapel mic is highly recommended. Without a lapel mic the audio from our Summer 2018 videos would have been unusable as the speaker's voices were overwhelmed by background noise like the wind and tipi fabric rustling. This model works well ($25): Professional Grade Lavalier Lapel Microphone.[1]
- A tripod is also highly recommended. A 40" or 50" tripod works well - higher is better if speakers are standing (otherwise the camera angle appears to be looking up at the subject). You may need a selfie stick attachment to affix your phone to the tripod. These tripod models are relatively inexpensive:
  Option 1 [2]
  Option 2 [3]

These videos cover some basics to make a good-quality video on a cell phone:

Basics of Cell Phone Filmmaking[4]
Tutorial 1: Mobile Filmmaking[5]

1 https://www.amazon.ca/Professional-Microphone-Omnidirectional-Recording-Conference/dp/B01AG56HYQ/ref=sr_1_5?ie=UTF8&qid=1531258819&sr=8-5&keywords=iphone+microphone&dpID=510eStKFnVL&preST=_SY300_QL70_&dpSrc=srch
2 https://www.amazon.ca/AmazonBasics-50-Inch-Lightweight-Tripod-Bag/dp/B00XI87KV8/ref=sr_1_4?s=electronics&ie=UTF8&qid=1534183805&sr=1-4&keywords=tripod&refinements=p_36%3A12035760011
3 https://www.amazon.ca/FOTGA-40-inch-Lightweight-Tripod-3-Way/dp/B0727YDQ7Z/ref=sr_1_6?s=electronics&ie=UTF8&qid=1534183805&sr=1-6&keywords=tripod&refinements=p_36%3A12035760011&th=1
4 https://www.youtube.com/watch?v=ng4lWpkVl64&feature=youtu.be
5 https://www.youtube.com/watch?v=x-gfkXu8OpI&feature=youtu.be

Recording B-Roll

Thanks to Hanne Pearce from University of Alberta Libraries for helping develop the material in this section, which is adapted from the Gwich'n Tribal Council Digital Literacy Project.

B-Roll is the additional footage in film that smooths transitions and provides a more interesting experience for the viewer.

B-Roll Tips and Tricks:

- Make sure you are shooting in landscape mode - turn your phone on its side so that it is in a horizontal position while filming.
- Shots need to be steady and slow. Make sure to have have a stable stance, hold the camera with both hands and avoid sudden movements. B-Roll can be shot with the photographer standing still, or there can be slight slow movement.
- Short shots are most useful for b-roll (<30 seconds) as they are edited in as brief occurrences.
- Try different angles, zoom levels, and be creative! B-roll is meant to engage the viewer.

Travel Videos: Master B-Roll in 5 Min[6]

A list of b-roll shots generated for the We are All Related AR stories is provided in Appendix E.

Other Equipment

- Handheld recorder

  Good backup for audio, but only use it if mic-audio does not work because it requires significant extra editing.

6 https://www.youtube.com/watch?v=wpdeM866xJE&feature=youtu.be

- Headphones
  Recommended for testing audio prior to filming interviews.
- Digital Camera
  Not necessary but may be useful to capture still images.
  Must be on silent during shooting.
  Can capture the filmmaking process.
- Cords and cables
  Bring all required for devices.

Photography
Appealing photographs are an excellent way to engage story viewers. They can be paired with audio in your AR story, or can be activated as standalone AR content. Landscape mode can help with consistency if you intend for your photos to be added into a video

Editing
If your video or audio requires editing, here are some free editing software resources:

- Audacity - free audio editor
- Windows Movie Maker - Microsoft video editing software
- Movie - video editing software for Macs

Some UAlberta libraries have editing software:
- Mac computers in Coutts computer lab have iMovie
- Mac computers in Cameron library have Adobe Creative Cloud, which includes video editing software
- See https://ist.ualberta.ca/services/labs-classrooms/lab-details to view which labs have different software

UAlberta Libraries[7]
UAlberta Libraries provides equipment borrowing for 48-hour loans, but items cannot be booked in advance.

Film and Video Arts Society of Alberta (FAVA)[8]
FAVA offers equipment rentals to members (membership fees required). Please note that FAVA requires a copy of the final story for their archives.

Tech in Ed - UAlberta[9]
University of Alberta Faculty of Education instructors may borrow recording equipment from Tech in Ed

7 https://www.library.ualberta.ca/services/equipment-lending
8 http://fava.ca/productions/rentals/
9 https://techined.ualberta.ca/equipmentloans

Knowledge Keeper Dr. Diana Steinhauer was the team's guide in determining our story topics and sharing Cree cultural content. Team members collaborated on the story concepts, generating ideas for b-roll and video shots, and testing out potential scripts based on previously recorded content. We recorded new content for our AR videos on a trip to Saddle Lake in the summer of 2018. Recording equipment was provided both in-kind (owned by team members), and borrowed from University of Alberta Libraries.

3.7 Activity 7: Use storytelling templates to plan your story

Thanks to graduate students Amy Mack and Aretha Greatrix for helping develop the material in this section, which is adapted from the Piikani Digital Literacy Camp 2018 Workbooks.

Videos can be created with scripted and unscripted stories. The development of both kinds of stories can be supported through preparing a plan to guide your recording process.

For scripted stories it is helpful to prepare the following planning materials:

- *Outline*
  - *Can break into acts (Act 1, Act 2, Act 3)*
  - *Create a beginning/introduction, middle, and end/conclusion*
- *Script*
  - *Written form of what happens on film*
  - *Includes Acts, Scenes, dialogue script*
  - *Audio and visual content is written in a script*
- *Storyboard*
  - *Visual representation of what happens on film - actors, backgrounds, camera angles*
  - *Good for sequences with lots of movement*

Intro to Storyboarding by RocketJump Film School[10]

For unscripted stories, rather than preparing dialogue and visuals to adhere to, the following planning tools are useful:

- *Outline*
  - *Plan a beginning/introduction, middle, and end/conclusion*
- *Moodboard*
  - *Moodboard can be a series of image and or text. Use whatever you like to show others what your vision is for your idea.*
  - *Show images, scenery, colors, items; think of a moodboard as a collage of various images that give you inspiration.*

10 https://www.youtube.com/watch?v=RQsvhq28sOI

Describe the type of look and feel you are trying to achieve.

Topman TV: Open Shot Moodboard [11]

Building on your concept and AR design, use some of the storytelling templates provided in this guide to plan out your story:

Appendix D: Script and Storyboard Templates
Appendix F: Instructions to View HP Reveal AR Content

3.8 HP Reveal Tutorial

Selecting an AR platform requires careful negotiation of issues of AR capabilities, content ownership, storage, and access rules. There are a number of user-friendly AR platforms, but accessibility sometimes means trade-offs with regards to cost, storage, and ownership. Using a commercial platform often limits our control and ownership, while free/open source platforms can be more difficult to use, or have limited features.

We present here a tutorial for using HP Reveal, which is a commercial platform. While it has certain limitations with regards to ownership and control of the content published on it, it is free and easy to use. We therefore provide an overview here - though we caution users to carefully consider what content they want to share on the HP Reveal Platform. To ensure more ownership and control, we recommend using a customized AR platform where possible.

Note: HP Reveal was formerly known as Aurasma. Some of the help materials are still branded Aurasma and demonstrate an older software version, but the concepts are largely the same. The following resources offer helpful tips and tricks for your AR project:

HP Reveal Helpdesk[12]
HP Reveal YouTube channel[13]

We also note that technologies are always changing, and tutorials and platforms can go out of date. Therefore, this information may not be relevant to readers - we recommend that you search directly for tutorials and resources that will support your AR project.

Demonstration: To see a demonstration on how to view AR content using the HP Reveal platform, please see Appendix E: Instructions to View HP Reveal AR Content.

11 https://www.youtube.com/watch?v=t4s3a7XdA1Y
12 https://aurasma.zendesk.com/hc/en-us
13 https://www.youtube.com/channel/UCaGvSwl2i2q0kVO7enf3NLA

HP Reveal App versus HP Reveal Studio: The Basics

You can make AR content (known as auras) in either the HP Reveal app or in the web interface, HP Studio. You can read more about these distinctions at the HP Reveal website.

For the purposes of your AR projects, we strongly recommend that you make auras in the Studio, and view them in the app. Think of the Studio as the creative platform, and the App as the AR viewer or lens.

The HP Reveal platform uses some key terms:

Aura: HP Reveal uses this term to describe an AR experience. Think of it as an AR project that includes both an Overlay (digital content viewed on screen of mobile device) and a Trigger Image (that launches the Overlay).

Overlay: This is the digital content that you see on the screen of your mobile device after hovering the viewfinder over the Trigger Image. Overlays can be a static image, a video, an animation, a 3D model, and more.

Trigger Image: This is the real-world image or object that HP Reveal technology will recognise to launch the AR experience (an Aura).

Viewfinder: The app screen on your mobile device through which you engage with the AR experience.

Creating and Logging into an HP Reveal Account

For your own personal projects, you can create an account here[14].
After you login to HP Reveal, you will be on the homepage, where you can begin creating auras (AR content).

The Basics of Creating Auras in HP Reveal

Complete these steps once you are logged in to your HP Reveal account:

1. Upload a trigger image. This is what the HP Reveal viewfinder will recognize in order to activate the AR content (or overlay)
2. Upload an overlay - this is the AR content that will be activated in HP Reveal
3. Customize an overlay (e.g. positioning, resizing, adding any extra actions)
4. Share an aura with App users using keywords and having people follow your account
5. View an aura

Step 1 - Trigger Images

The first step is to create or choose a trigger image. Certain trigger images (what the HP Reveal app will recognize to activate AR content) work better than others. For an overview of HP Reveal trigger images, please review this tutorial.

14 https://studio.hpreveal.com/landing

You should work with your team to choose the most appropriate Trigger Image for your specific AR story. When you upload a trigger image, there is an option to set a trigger image location in HP Studio. Once you have set a location, the AR content will only activate at that location.

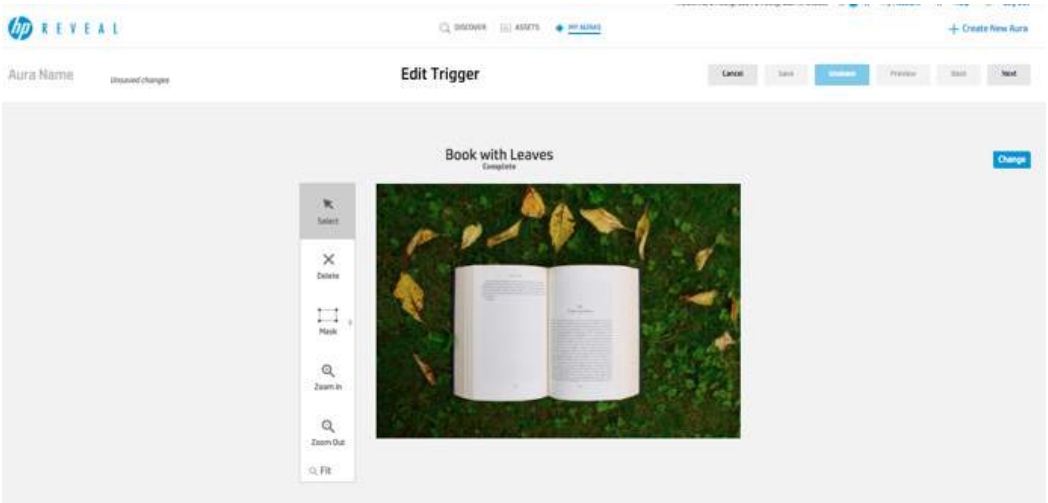
Note: This feature is not easily undone; you should only create your aura with this function if you are certain that it is a requirement you want to add.

Please see Appendix C: "We Are All Related" AR Trigger Images for the trigger images used for the We are All Related AR project. For our proof of concept, we pre-selected a series of photos of different parts of the Sweetgrass Bear sculpture that students could use as trigger images in their projects. We also made these pre-selected trigger images available on the Sweetgrass HP Reveal site -- the students creating the AR stories could view them by visiting the 'Assets' page, and then clicking on the 'Triggers' tab.

For the purposes of our prototype, we decided not to set the trigger image location at first. However, in consultation with Diana and Stewart, we may revisit this to set the location so that content is only available at the Sweetgrass Bear sculpture at Enterprise Square. Doing so would require re-uploading our AR stories.

Troubleshooting: HP Studio is Rotating My Trigger Image
You upload your image, only to see it rotated 90 degrees in HP Studio. This is a known issue. Try rotating the original image a few times and uploading it again.

Design tip: HP Reveal has a masking tool which can help improve trigger images. Information about the masking tool is included in the linked instructions above. You can also see a masking tool demonstration by viewing this Youtube clip[15].



15 https://www.youtube.com/watch?v=OxYMN08h6Qk

Step 2: Basic Overlays
The second step is to create or choose your overlay - this is the AR content that will appear when someone scans your trigger image using the HP Reveal app. You can add an overlay to your aura after you upload your trigger image: HP Studio will prompt you to upload a new overlay, or add an overlay you've already uploaded previously.

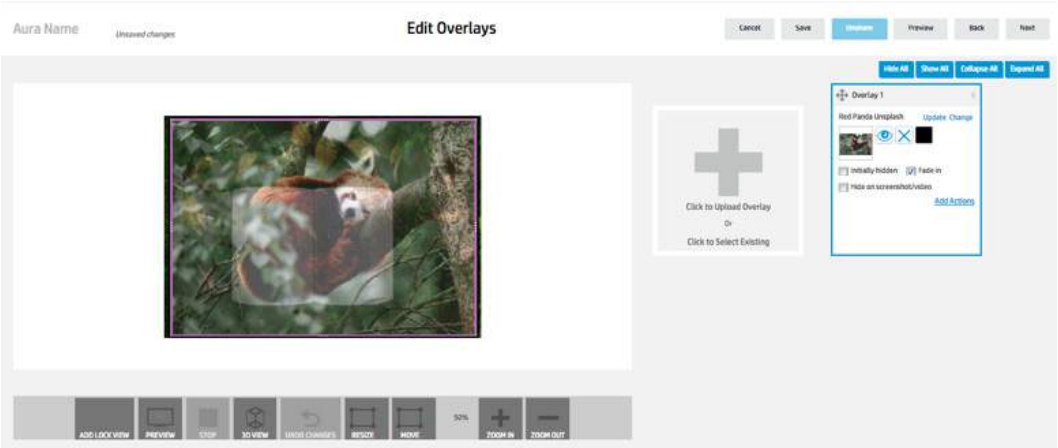
Your overlay can be audio, image, video, or a 3D model.

The maximum size currently used in HP Reveal is 100 MB. However, smaller is better since smaller files will upload more easily for your viewer and use up less of their mobile data.

Image Overlay
These instructions apply if you want to create a static image for your AR overlay content. To do this, first create or choose the image you want to use as your overlay. Then click your aura page to upload a new overlay and select 'Image' from the drop down menu. Choose the image you want to use. This image can be resized and positioned relative to the trigger image.

Demonstration: For this example we created a test image overlay for use with the books and leaves trigger image presented above. Follow Step 2a to select the image of a sleeping red panda as your image overlay.

Once uploaded, the red panda image can be edited (see the screen capture image below).



After saving and clicking Next, we were prompted to name the aura so others could find it. We called it "Sweetgrass AR Studio: Demo Aura for Guidelines". We could also add hashtags, if we want to. It may take some time for the new aura to be ready to be shared. There will be a button on the top menu you can click that will say Share or Unshare.

Video Overlay
You can also create video overlays to use in HP Reveal. These instructions apply if you want to create a short video for your AR overlay content. You can upload a short video clip that will play when someone using HP Reveal scans your trigger image.

To do this, similar to the image example described above, you must first create or choose the video you want to use (upload a new overlay and select 'Video' from the drop down menu).

Note: To work in HP Reveal, your video will need to adhere to certain specifications.

For best results: use a video formatted as an MP4, using a H2.64 codec. The maximum size is <100 MB, but videos that are much smaller will work best.

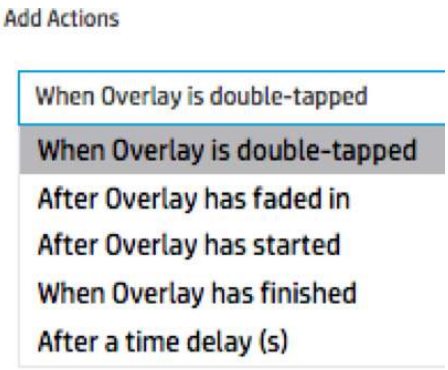
Audio Overlay
Finally, you can create audio overlay content that will play when someone using HP Reveal scans your trigger image. Similar to video and static image content, you need to record audio first, and then upload it as an overlay associated with your trigger image The HP Reveal website does not currently have any tutorials available for Audio Overlays.

Step 3: Adding Extra Features to Your AR Content

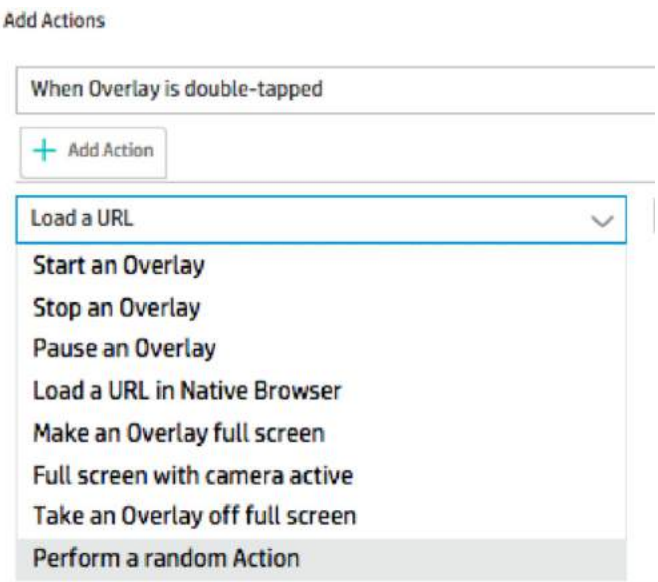
After you upload or select your overlay, you can add extra features to your AR content. For example, you can create an action where tapping the AR overlay in the HP Reveal app viewer will take the user to an external website. You do this by choosing actions from the blue menu box on the right side of your image.

To do this, click "Add Action" to add extra features to your overlay.

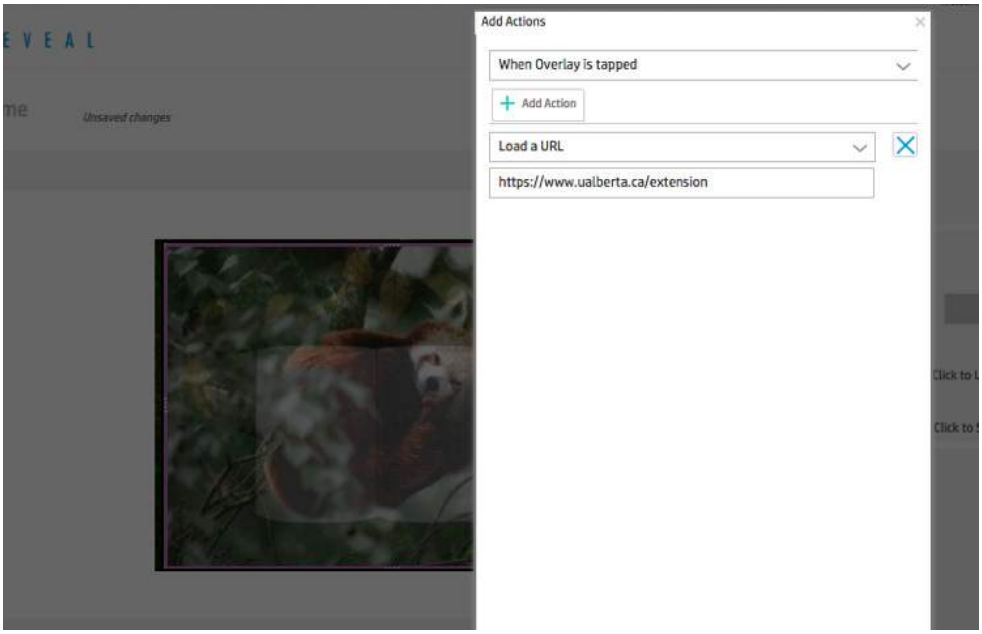
First, select one of the following conditions to make your action happen:



Note: In this drop down menu "when overlay is tapped" is no longer available because we already selected that option for our books and leaves photo demo. Next, select the action that you want to happen:



Demonstration: See the image on the next page. For this example we added an action: the University of Alberta's Faculty of Extension homepage loads when the overlay of the red panda image is tapped.



Step 4: Sharing AR Content
HP Reveal makes it easy to publicly share your aura - provided that you have created your aura using the HP Studio function using the steps outlined above.

To share your aura, click the "Share" button in Studio. It is important to know that this makes your content discoverable, but to do so, viewers will need to find you and follow you to view your auras.

Remember the steps covered in this guide - has the storyteller you are working with given you permission to share information in this way?

Hashtags are one way to make your content discoverable.

Step 5: Viewing AR Content
As noted above, to view an aura you must follow the account of its creator. You can find the creator's account to follow by searching for keywords they used in their account name, hashtags, or auras.

For example, searching for "sweetgrass" will find the Sweetgrass AR Studio account. More explicit instructions to view a demonstration are provided in Appendix F: Instructions to View HP Reveal AR Content.

SHARING AND STEWARDING THE STORY

This section provides an overview of what you need to know to share and steward your AR story. Stewardship refers to the care and protection of the story and project materials. We used the term stewardship because it refers not just to maintenance, but also to responsibility and protection. Stewardship is different from the way we tend to think about intellectual property in the Western sense, which derives from individual property rights rather than collective responsibilities.

Like other sections, we are unable to provide specific directions for the stewardship of your story, since the relationships guiding each project will be different. We can, however, review some key issues for you to contemplate, identify resources, and describe how we shared the We are All Related AR story in the context of the project with team members from Saddle Lake Cree Nation.

Sharing the Story Contents

1. Who is Your Story for?
2. Western and Indigenous Approaches to Ownership and Access
3. OCAP® and Data Sovereignty
4. Intellectual Property Rights
5. Copyright (and its limits)
6. Activity 8: Finalize the governance agreement for your project
7. Traditional Knowledge Labels
8. Open Educational Resources
9. Digital Stewardship: Access Rights and Responsibilities

4.1 Who is your Story for?

Thinking about who your AR story is for is critical to consider when planning to share your story. In Indigenous contexts, there may be certain conditions attached to stories. Some stories are created to be shared widely with the public, and other stories are meant to be shared only within a specific territory, nation, or within certain contexts. If your story has a restricted audience, it may require password access or rules of use. If your story is meant to be shared widely, you may need to plan how you will let everyone know about it.

In one exploration of creating mixed-reality software intended for use by a specific community, Sieck & Zaman (2017) discuss software that interacts with handmade items for a secret symbol-based language of the Malaysian Borneo Penan community. The handmade symbols are traditionally made from items such as leaves and sticks. Community members learning the language practice making symbols with conductive materials recognized by an app. The mixed-reality app was purposefully designed to "limit the influence of 'outsiders cultural understandings' on the local context [using] materials and processes of knowledge exchange that are already familiar to the local community" (p. 3).

Your project will require planning how to share the story (e.g. audio, visual, AR platform), and also planning how you will communicate with others about the

story (e.g. social media, news releases, reports, articles). Is there anywhere that your AR story might be discussed and shared outside of the AR platform? How will you address and manage any media coverage, social media, project reports or articles about the story? As discussed earlier, how will your team manage communication, collaboration, decision-making, and consent when discussing and sharing about your AR story?

4.2 Western and Indigenous Approaches to Ownership and Access

Sharing a co-created AR story based on Indigenous stories, particularly as a student or staff member of a post-secondary institution, means navigating both Indigenous and Western approaches to sharing knowledge.

The notion of ownership can be a challenging concept when it comes to sharing stories. Indigenous legal systems have different ways of understanding ownership. For example, individual vs collective ownership. For Indigenous peoples, stories may not be owned, but instead held to preserve and share knowledge with and for future generations. Permission to share stories may require certain relationships, protocol, and ceremony (called transfer rights in some contexts, such as Piikani, Niitsitapi, or Blackfoot).

Western perspectives may use concepts of copyright and intellectual property to convey ownership and how a story may be shared. At a We are All Related AR project meeting in December 2017, Dr. Diana Steinhauer noted that the English

language is very noun-based, and ownership is implicit in the language. Verb-based languages like nehiyawewin (Cree) are more relationship-based where the word 'my' is often depicting a relationship rather than ownership of another living entity. This point is also noted in Shawn Wilson's discussion of Indigenous ontology and epistemology in Research is Ceremony (2008): "in the Cree language, the literal translation into English for a chair would be 'the thing you sit on' and the literal translation for pen would be 'something you write with'" (p. 73).

Issues around ownership are far too complex to explore in detail here. Below we will discuss some introductory approaches to sharing and protecting knowledge and digital content.

Tools to manage and protect digital content
Adapted from **Gwich'in Digital Literacy Project Student Handbook, 2018**

There are many different ways that we can manage and protect the digital content we create.

- **Cultural** rules and knowledge-sharing protocols are grounded in and developed by First Nations
- **Technical** rules are ways that we can use devices and software to create boundaries and barriers around our work
- **Legal** rules include laws such as Copyright and Intellectual Property
- **Educational** rules include guidelines for users
- **Commercial** rules include charging people for access to a digital library

Indigenous knowledge and intellectual property rights[1]
This article by Jane Anderson describes how colonial concepts of knowledge and ownership have influenced intellectual property law and the resulting challenges for protecting Indigenous knowledge.

Gnaritas nullius (no one's knowledge): The essence of Traditional Knowledge and Its colonization through Western legal regimes[2]
Gregory Younging describes kinds of Indigenous knowledge, methodologies, and law, and reviews the development of European concepts such as copyright and trademarks. Case studies review the challenges of applying European concepts of ownership, copyright to Indigenous knowledge. This article is reprinted in Younging's book Elements of Indigenous Style (2018).

1 https://nyu-staging.pure.elsevier.com/en/publications/indigenous-knowledge-and-intellectual-property-rights
2 https://www.brusheducation.ca/books/elements-of-indigenous-style

Publication Policy: First Nations Innovation project[3]
This example of a publication policy demonstrates the many considerations that may go into communications about your AR story. How will community contributors be acknowledged? Who can represent the project at presentations?

For the We are All Related AR story we implemented both Western and Indigenous approaches to story creation and sharing. Both ceremony and signed documentation were used to fulfill cultural and institutional requirements.

4.3 OCAP® and Data Sovereignty

As noted earlier, the OCAP® principles were defined by the Steering Committee of the First Nations Regional Longitudinal Health Survey as an "expression of self-determination in research" (Schnarch, 2004, p. 80). These principles were articulated in response to a damaging history of research with Indigenous peoples, and while originally developed from a First Nations' perspective, the principles can be extended to other Indigenous contexts (Schnarch, 2004).

OCAP® Principles (excerpted from Schnarch, 2004)

- Ownership - Ownership refers to the relationship of a First Nations community to its cultural knowledge/data/information. The principle states that a community or group owns information collectively in the same way that an individual owns their personal information.

- Control - The principle of control asserts that First Nations Peoples, their communities and representative bodies are within their rights in seeking to control all aspects of research and information management processes which impact them.

- Access - First Nations Peoples must have access to information and data about themselves and their communities, regardless of where it is currently held. The principle also refers to the right of First Nations communities and organizations to manage and make decisions regarding access to their collective information.

- Possession - Although not a condition of ownership per se, possession (of data) is a mechanism by which ownership can be asserted and protected. When data owned by one party is in the possession of another, there is a risk of breach or misuse. This is particularly important when trust is lacking between the owner and possessor.

For the AR projects, the OCAP® principles apply not just to the finished stories, but to the storymaking process and all the story materials. For example, if you are creating an audio story, who will own, control, have access to, and possess

3 http://firstmile.ca/wp-content/uploads/2015/03/2013-FNI-publication_policy_January.pdf

the raw audio files? Where will your project agreement, or any consent forms, be stored and maintained?

Example: Applying OCAP® to digital networks
The OCAP® principles can be applied to many different kinds of projects, including digital networks and broadband connectivity:

> *"In Canada, OCAP – ownership, control, access and possession – principles are now being applied in several policy areas. OCAP is a response to the role of knowledge production in reproducing colonial relations and was originally developed by First Nations to apply self determination to research (Schnarch, 2004). OCAP applied to telecommunications, or self determination applied to broadband networks, has at least two implications. First, that First Nations must retain access to and possession of the capacity and resources to effectively manage the content, traffic and services on their local network. Second, that First Nations have a right to own and control the local broadband network in their communities in order to support the flow of information and services"*
>
> *(Kakekaspan, O'Donnell, Beaton, Walmark, & Gibson, 2014, p. 3).*

Data Sovereignty

Data, encoded in digital form, refers to patterns of numbers (most often '0' and '1') that are used to organize signals and information in a way that allows them to be expressed in forms including written words, sounds, and images. These patterns of 0s and 1s are read or interpreted through equipment such as computers, USB sticks and digital cameras. These devices read, process, and store a wide range of digital information (sometimes known as 'data'). Digital content can be either 'born digital' or created from non-digital content. Born digital refers to things like digital photographs (such as those taken by your cell phone). Digital content created from other formats include things like scanned versions of photographs taken by older cameras - the kinds that use film and prints.

Whether or not it is created new or re-created in digitized form, data can be found in many different formats. Indigenous forms of data include:

> *"any facts, knowledge, or information about a Native nation and its tribal citizens, lands, resources, programs, and communities. Information ranging from demographic proles to educational attainment rates, maps of sacred lands, songs, and social media activities are all data" (Rainie, Rodriguez-Lonebear, & Martinez, 2017).*

Indigenous peoples have many ways of collecting data about themselves, from oral storytelling, to totem poles, to Niitsitapi (Blackfoot) Winter counts (Rodriguez-Lonebear, 2016). Rodriguez-Lonebear further identifies that "In the indigenous world, data have a contentious history tied to the survival of native peoples on one hand, and to the instruments of the coloniser on the other" (p. 257). For some, Indigenous data sovereignty has been a way of reclaiming the practise of gathering data to benefit Indigenous peoples. The US Indigenous Data Sovereignty Network defines Indigenous data sovereignty as "the right of a nation to govern the collection, ownership, and application of its own data" (US Indigenous Data Sovereignty Network, 2018, para. 2).

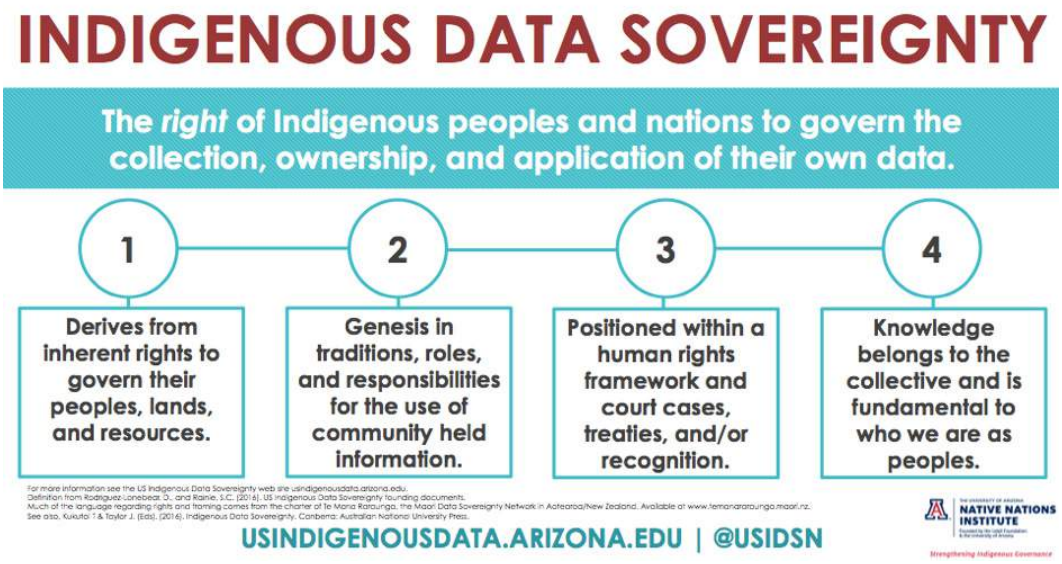


Image courtesy of US Indigenous Data Sovereignty Network at https://usindigenousdata.arizona.edu/

In developing the We are All Related AR project, the team considered how the OCAP® principles might be applied to the data and stories we created. These include the following considerations:

Ownership - We developed a project agreement that included recognition of collective responsibility to the work. Cultural content remained the property of team members from Saddle Lake Cree Nation. Ownership (copyright) for products created through the project was formally assigned to Diana and Stewart through a written agreement (project research consent form).

Control - Team members collaborated on an ongoing basis throughout the project, and aimed towards consensus decision-making for all major decisions.

Access - Final stories are shared publicly through the HP Reveal AR platform, with permission from Diana Steinhauer and Stewart Steinhauer. These access permissions are reflected through a Creative Commons license (CC BY-NC-ND 4.0) applied to the AR stories. We also agreed to share the story-creating process through these OER guidebooks, and through co-authored publications, such as this article in Northern Public Affairs.

Possession - Digital files for the digital recordings and final AR stories will be transferred to Diana Steinhauer and Stewart Steinhauer one year after the completion of the project (which currently ends on December 31, 2018).

Understanding the First Nations Principles of OCAP®: Our Road Map to Information Governance[4] *(6 min, 21s)*
This video from the First Nations Information Governance Centre provides an introduction to the FNIGC and the OCAP™ principles. A shorter video is available in the video description.

FNIGC: Data by First Nations for First Nations[5] *(7 min, 19s)*
This video from First Nations Information Governance Centre showcases community health researchers' perspectives on collecting and using First Nations data within their own communities.

Ownership, Control, Access and Possession (OCAPTM): The Path to First Nations Information Governance[6]

Barriers and Levers for the Implementation of OCAP™ [7]

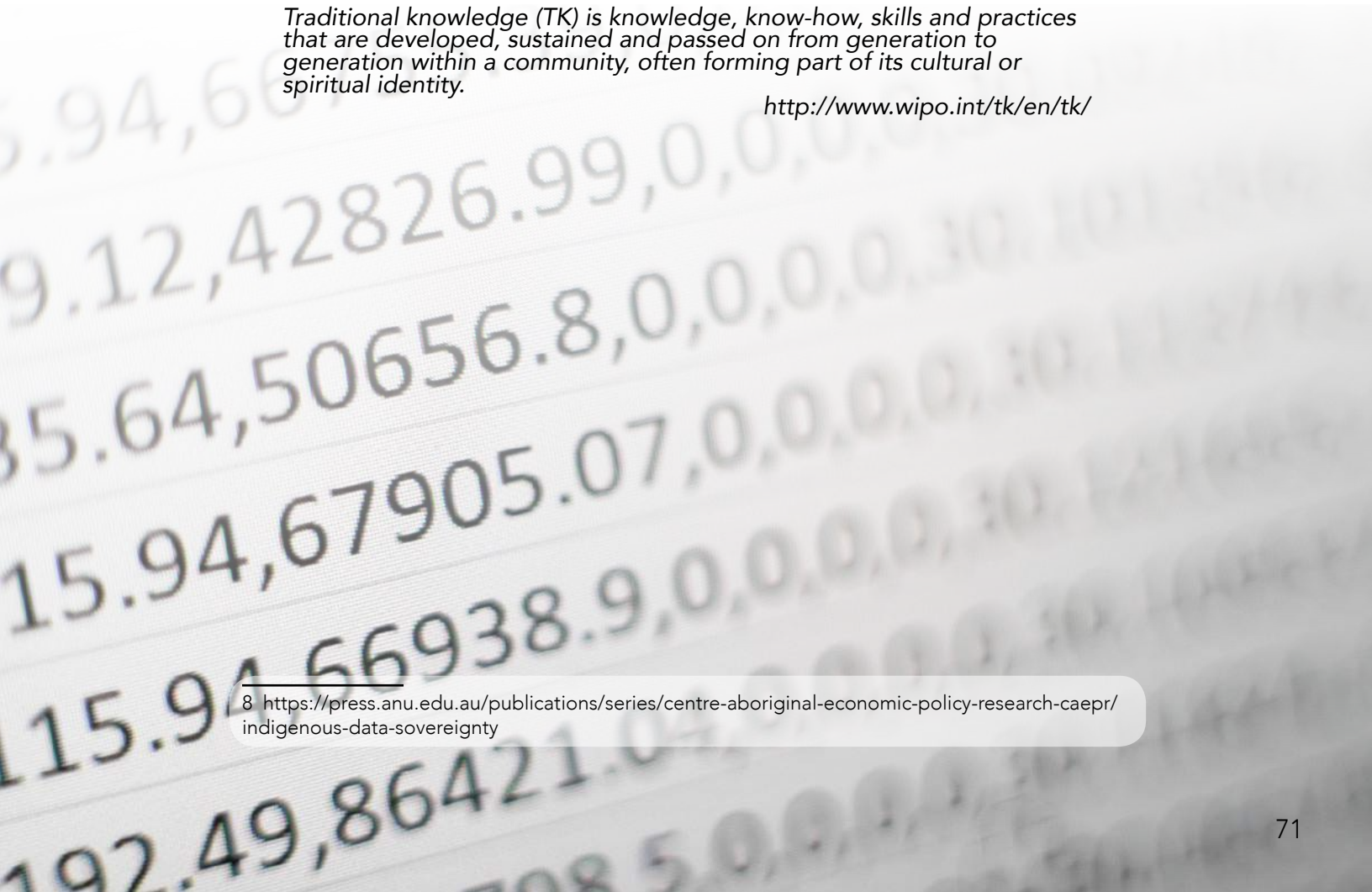
4 https://www.youtube.com/watch?v=y32aUFVfCM0
5 https://www.youtube.com/watch?v=XAiwn0tKCIM
6 http://fnigc.ca/sites/default/files/docs/ocap_path_to_fn_information_governance_en_final.pdf
7 http://fnigc.ca/sites/default/files/docs/barriers_and_levers_for_the_implementation_of_ocap.pdf

Indigenous Data Sovereignty: Toward an agenda [8]
This multi-authored book is available as a free download from the Australian National University website.

4.4 Intellectual Property Rights

United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), Article 31:

> *Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts.*
>
> *They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions.*
>
> *The appropriation of Indigenous cultural knowledge, expression, and resources has necessitated seeking legal means for protection. Organizations such as the World Intellectual Property Organization (WIPO) are working to address the protection of Traditional Knowledge (TK) through Intellectual Property (IP). While noting there is no internationally accepted definition of TK, WIPO offers this description:*
>
> *Traditional knowledge (TK) is knowledge, know-how, skills and practices that are developed, sustained and passed on from generation to generation within a community, often forming part of its cultural or spiritual identity.*
>
> *http://www.wipo.int/tk/en/tk/*



8 https://press.anu.edu.au/publications/series/centre-aboriginal-economic-policy-research-caepr/indigenous-data-sovereignty

WIPO offers a number of resources related to Intellectual Property and Traditional Knowledge, from toolkits and databases to issue analysis and information on laws and legislation. Intellectual property to protect Indigenous Knowledge is a complex and still-developing issue, and critics have argued that Indigenous peoples faced challenges in full access to some WIPO processes and decision-making (Harry, 2011).

While intellectual property rights are one option to protect Indigenous Knowledge, there are several barriers and limitations, as described by Vanessa Udy, a lawyer and Intellectual Property Issues in Cultural Heritage (IPinCH) Associate. IPinCH is an international research project co-developed by co-developed by George Nicholas (Simon Fraser University), Julie Hollowell (Indiana University) and Kelly Bannister (University of Victoria).

In her article "The Appropriation of Aboriginal Cultural Heritage: Examining the Uses and Pitfalls of the Canadian Intellectual Property Regime", Udy describes why applying IP concepts to Indigenous cultural knowledge, expression, and resources can be challenging. Udy identifies how IP is meant to economically protect and benefit creators; whereas Indigenous Knowledge may be considered timeless, to be communally held, and not to be sold for individual economic benefit. Additionally, IP rights may only extend to the expression or form of the idea, not to the styles or concepts within. Jane Anderson, a professor at New York University, discusses the development of intellectual property rights and the challenges of incompatible concepts of knowledge and ownership in her 2015

article "Indigenous Knowledge and Intellectual Property Rights". This article is a helpful overview of some of the challenges to and support of community ownership of Indigenous Knowledge.

One example of trademarking and appropriation is a case between Urban Outfitters and Navajo Nation. Urban Outfitters released a line of products with names such as "Navajo Socks" with the product line ranging from jewellery and clothing to a style of flask often used to hold liquor (Keene, 2011). Navajo Nation, which has trademarked the term "Navajo", claimed trademark infringement and other violations. Urban Outfitters responded that the term "Navajo" was generic and descriptive (Shelley, 2015). The case took place over several years, and eventually Urban Outfitters settled for an undisclosed amount (Woolf, 2016).

Teepees and Trademarks: Aboriginal Peoples, Stereotypes and Intellectual Property[9] *(44 min)*
An advisement that this resource includes images of appropriation, including violent imagery.

9 http://www.sfu.ca/ipinch/resources/videos/teepees-and-trademarks-aboriginal-peoples-stereotypes-and-intellectual-property/

Intellectual Property and Access to Im/material Goods[10]
This book focuses on issues of access and new technologies related to intellectual property, including chapters on cultural heritage law and cultural property law.

Indigenous Intellectual Property: A Handbook of Contemporary Research[11]
This handbook, edited by Matthew Rimmer, Professor of Intellectual Property and Innovation Law at Queensland University of Technology, explores the international history and challenge of applying intellectual property concepts to protect Indigenous knowledge, including recent developments in technology.

Biocolonialism and Indigenous knowledge in United Nations discourse
Harry, D. (2011). Biocolonialism and Indigenous knowledge in United Nations discourse. Griffith Law Review, 20(3), 702-728.[12]
Harry critiques the commodification of traditional knowledge and genetic material, and the challenges of developing international frameworks and concepts of intellectual property to protect Indigenous knowledge.

4.5 Copyright

This below sections on Copyright and Creative Commons Licensing were written as part of the Gwich'in Digital Literacy Project, a collaborative project between the Gwich'in Tribal Council and Researchers at the University of Alberta.

Copyright

Copyright was originally developed to promote learning and education, but has developed into a means to encourage authors of content to make available their work by providing certain legal protections, such as control over the copying and resale of their work. Copyright is, however, designed specifically towards protecting individuals. Copyright also allows others to do certain things to creative works without the permission of the author. While this means you can use copyrighted materials in certain ways, it also means that other people can use your material in ways you may not want or agree with. Copyright is a western European idea originally created to protect writers. It has always celebrated and emphasized individual authors. This is problematic when the content is cultural and belongs collectively to a whole culture or Nation.

Dr. Marie Battiste, a Mi'kmaq Professor at the University of Saskatchewan, has researched these topics in terms of Indigenous contexts. She writes:

> *"a trademark, or a copyright cannot adequately protect a ceremony that uses striking sacred society symbolism to communicate empirical knowledge of medicinal plants. The medical knowledge may be patented, but the patent will expire in a matter of years. The text and music for the ceremony can be recorded (or fixed) and copyrighted, but*

10 https://www.e-elgar.com/shop/intellectual-property-and-access-to-im-material-goods
11 https://www.e-elgar.com/shop/indigenous-intellectual-property
12 https://doi.org/10.1080/10383441.2011.10854717

> *only the recorded version will be protected and only for the lifetimes of the performers plus fifty years. The symbols can be protected as trademarks forever, but their significance will be diminished when they are taken out of context" (Battiste, 2005, p.8).*
>
> Dr. Marie Battiste in Indigenous Knowledge: Foundations for First Nations[13]

The idea that someone can own an idea, a piece of art or a song is relatively new from a historical perspective. Content created in the modern legal context of most countries is now protected by Copyright. The Oxford English Dictionary describes Copyright as "The exclusive right given by law for a certain term of years to an author, composer, designer, etc. (or his assignee), to print, publish, and sell copies of his original work."

The law balances copyright with the law of fair dealing, which states, "… copyrighted material may, under certain circumstances, be quoted without permission of the copyright holder for purposes such as private study, research, or criticism."

In Canada, generally, copyright lasts for the life of the author, the remainder of the calendar year in which the author passes on, and for 50 years following the end of that calendar year. Therefore, protection will expire on December 31 on the 50th year after the author dies. 50 years following the author death, content falls into what is called the Public Domain. Content in the public domain is free to be used or remixed by anyone without permission.

Younging (2018) provides two examples of the process of publishing Indigenous knowledge in the chapter Culturally Appropriate Publishing Practices, including determining copyright. In one example, an Elders Council requires the book's copyright is held by the Tribal Council, and in the other example a book's copyright is held by ten different Indigenous communities.

When working with large organizations such as post-secondary institutions, copyright may need extra attention and consideration. Internal processes and standard template documents may have copyright implications that are automatically implemented. We recommend familiarizing yourself with applicable policies so you can navigate any issues of ownership and copyright.

Creative Commons Licensing

Creative Commons licenses apply to access rules. They are a popular way to indicate that content is free to be used under certain conditions. Authors of content can assign a CC or Creative Commons License to their work indicating whether they wish those who reuse the content to give credit (attribution) to the original author, whether it can be reused for commercial purposes, or if reused content should be made reusable as well.

13 https://www2.viu.ca/integratedplanning/documents/IndegenousKnowledgePaperbyMarieBattistecopy.pdf

Creative Commons Licensing[14]
Creative Commons provides copyright licenses for creators to set limits on how their work is shared and used by others.

Small Group Discussion or Individual Reflection
What are your thoughts on the application of copyright or Creative Commons licensing for your story project?

Individual Activity
Find an image online that you think could be relevant to your AR story. What is the image's copyright? Can you legally use it for your AR story? How?

14 https://creativecommons.org/share-your-work/licensing-types-examples/

Copyright for the final AR story videos is held by Dr. Diana Steinhauer and Stewart Steinhauer. The guidebooks will be shared as Open Educational Resources, through a Creative Commons license.

Copyright and Fair Use Animation[15]
This animated video from Common Sense Media introduces copyright, fair use and creator rights in the context of online materials.

Copyright Office Staff & Student Guide, UAlberta[16]
This University of Alberta copyright guide includes information on policy and using images, as well as information specifically for students, instructors, and researchers.

UAlberta Fair Dealing Guidelines[17]
Copyright fair dealing refers to specific exceptions under Canadian copyright law. These guidelines detail what copyright-protected works can be used by course instructors, faculty, researchers, and university employees, including how the content may be used, and under what conditions.

The Learning Portal, College Libraries Ontario[18]
This learning portal shares information on copyright, Creative Commons licensing, and open educational resources (OER).

4.6: Activity 8: Finalize the governance agreement for your project

Revisit your project governance document, and update it to reflect the outcomes of discussions about this section's topics. We recommend creating a Memorandum of Agreement (MOA) that is based on the iPinch template and specific to your AR project.

This template should reflect the project plans you have been developing as you have worked through this guidebook, your personal reflections, and specifics points you have considered in collaboration with your project team.

15 https://www.youtube.com/watch?v=suMza6Q8J08
16 https://www.ualberta.ca/copyright/student-staff-guide
17 https://www.ualberta.ca/copyright/student-staff-guide/ualberta-policies-procedures/fair-dealing-guidelines
18 https://tlp-lpa.ca/oer-toolkit/licensing

4.7 Traditional Knowledge Labels

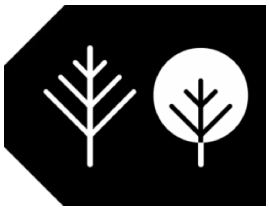
Traditional Knowledge labels are an innovative approach to the digitization of Indigenous intellectual property and cultural heritage. As described by the Local Contexts website:

> *The TK Labels are a tool for Indigenous communities to add existing local protocols for access and use to recorded cultural heritage that is digitally circulating outside community contexts. The TK Labels offer an educative and informational strategy to help non-community users of this cultural heritage understand its importance and significance to the communities from where it derives and continues to have meaning. TK Labeling is designed to identify and clarify which material has community-specific restrictions regarding access and use. This is especially with respect to sacred and/or ceremonial material, material that has gender restrictions, seasonal conditions of use and/or materials specifically designed for outreach purposes. The TK Labels also can be used to add information that might be considered 'missing', including the name of the community who remains the creator or cultural custodian of the material, and how to contact the relevant family, clan or community to arrange appropriate permissions.*
> *-http://localcontexts.org/tk-labels/*

The Local Contexts website offers several valuable educational resources, including:

- Descriptions of key concepts such as intellectual property or protocol
- Training modules on intellectual property and traditional knowledge
- Templates
- Publications
- Step-by-step guide

The TK labels are meant to be customized by each community. Here is an



example of a TK label, courtesy of the Local Contexts website:
TK Seasonal (TK S)

> *This label should be used when you want to let external users know that the material that is openly circulating has seasonal conditions of access and use. This could mean that some material should only be used and heard at particular times of the year. It could also mean that the environment and land where this material derives also influences and impacts its meaning and significance. This label can be used to help external users know that there are land-based teachings in this material which affect proper use and respectful understanding.*
> *http://localcontexts.org/tk/s/1.0*

Local Contexts Traditional Knowledge Labels (2 min, 53s)[19]
This video introduces the concepts of TK labels and their purpose.

'Sq'éwlets': A Stó:lō-Coast Salish Community in the Fraser River Valley[20]
This 'Sq'éwlets' website includes rich cultural and archeological information. The materials online demonstrate the use of TK labels. Classroom resources and publications related to the project are also available.

Small Group Discussion or Individual Reflection
Would Traditional Knowledge labels be useful for your AR story or related materials?

4.8 Open Educational Resources (OER)

> *"Open Educational Resources (OERs) are any type of educational materials that are in the public domain or introduced with an open license. The nature of these open materials means that anyone can legally and freely copy, use, adapt and re-share them. OERs range from textbooks to curricula, syllabi, lecture notes, assignments, tests, projects, audio, video and animation."*
>
> UNESCO, n.d., first para.

The use of OER in the context of Indigenous knowledge is complex. OER enables high levels of sharing, which can be a concern in the case of types of knowledge that often requires context, involves certain access and ownership rules, and are frequently appropriated. On the other hand, sharing traditional knowledge through OER also helps prevent the information from being restricted or copyrighted in ways that do not serve the First Nation that the knowledge originates from. It is important to discuss these tensions with your project team members, to ensure that risks are mitigated as much as possible.

Teaching and Learning Today Conference, 2018: Fishbowl Discussion [21]
(1 hr, 20 min)
A video of a fishbowl conversation on Indigenization and open pedagogy in higher education.

Developing OERs, University of Alberta Copyright Office [22]
This website includes resources such as "OER - Copyright Considerations An Introduction" and "OER - Copyright Considerations in Practice".

19 https://vimeo.com/75449158#at=12
20 http://digitalsqewlets.ca/index-eng.php
21 https://www.youtube.com/watch?v=g8Rov9FI9Hs
22 https://www.ualberta.ca/copyright/student-staff-guide/developing-oers

The We are All Related AR guidebooks were developed to share the process of co-creating AR stories with Indigenous Knowledge Keepers and storytellers, in order to build relationships and understanding. In the spirit of exploring Indigenous-settler relations, our team wanted to make these materials OERs to support efforts to engage readers through a creative, collaborative project. While curriculum about the shared histories and present contexts of Indigenous and settler peoples has an important and necessary role in this work, we wanted to create structured opportunities for teachers and students to work directly with Indigenous Knowledge Keepers and Elders. This process orientation was designed to open space for ongoing dialogue and reflection, as well as a means to practice ethical relationship-building.

To this end, our project separates limited-access copyright (associated with Indigenous Knowledge) and open access process and learning resources (such as this guidebook, made available as OERs). This separation of access rules according to our goals for different resources was developed over time, through ongoing discussions with our team members from Saddle Lake Cree Nation.

4.9 Digital Stewardship: Access Rights and Responsibilities

This concluding section will discuss the stewardship, or care, of story and project materials. This requires both short-term and long-term planning and management. This section is informed by materials from the Piikani Cultural and Digital Literacy Camp Program and the Exploring Digital Literacy in Gwich'in Contexts projects.

Access Rights and Responsibilities

Access rights and responsibilities are applicable to storage, security, and preservation. When we create, share, and store knowledge, it is important to address who is allowed to experience, access, and make decisions about that knowledge. Mechanisms to support these decisions can range from cultural protocols guiding access, to technical resources to keep data safe and secure.

For example, a Māori Maps database of marae (sacred meeting grounds) in New Zealand offers three levels of database access: "open access, providing location, general background and contact information; password-initiated access, with permission of designated elders, to community archives for descendants wishing to learn more about their heritage; and a cache of sensitive information maintained as a backup record for the use of designated community elders" (Tapsell, 2009 in Brown, 2012, p. 318).

"Ko to ringa ki nga rakau a te Pakeha": Virtual Taonga, Maori, and Museums[23]

Brown (2008) explores Maori worldviews which influence AR and VR installations in museums, including protocol and how to protect the dignity of virtual dancers. A discussion of the complexities of intellectual property and copyright for virtual materials is also included.

Storage

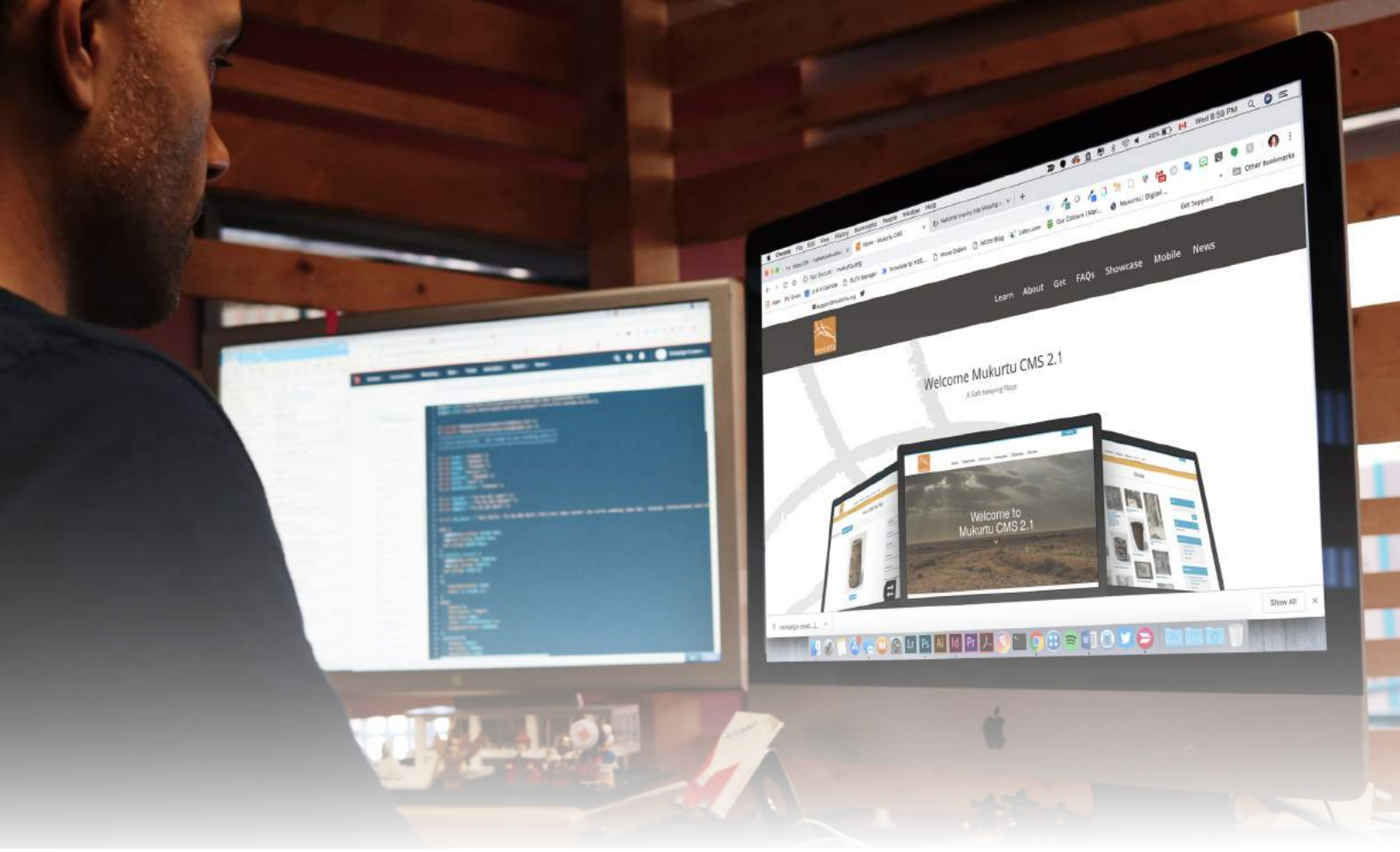
How will all the pieces of your story be stored? Where? In what format? For how long? For example, if you make an audio story, where will the raw and final audio recordings be stored? Who will have access to those recordings, and make decisions about them in the future?

Here are some of the materials that you may need to consider planning storage for:

- Raw story materials (e.g. unedited audio or video recordings, photographs, video, illustrations)
- Final public AR stories (e.g. edited video, audio, animations, or images)
- Documentation (e.g. consent forms, meeting notes, related resources and source materials)
- Team communication materials (e.g. emails, project notes, photos of the team working on the project, presentation materials, reports, posters)

A shared Google Drive was used to store and share story and project materials during the project. Recognizing that the composition or orientation of a team may change in a project's lifetime, the We are All Related AR team created a general email account for the project and project emails were cc'd to this account for archiving and record-keeping purposes.

23 https://www.tandfonline.com/doi/abs/10.1080/01973760801892266?journalCode=gvir20



Mukurtu CMS
Mukurtu is an Indigenous content management system (CMS) for digital content. Features include TK labels, ability to apply cultural protocol to determine levels of access, and the ability to share several stories related to one digital item. The Voices of Amiskwaciy project through Edmonton Public Library shares Indigenous content with Mukurtu at https://voicesofamiskwaciy.ca/. Voices of Amiskwaciy stories can be viewed based on location, community, or type of content.

As described by graduate student Hanne Pearce for the Gwich'in Digital Literacy Handbook:

> Mukurtu is a free digital content management system designed by and for Indigenous communities. It is an open-source webpage management system you can use to create a community archive or digital library. Mukurtu (MOOK-oo-too) is a grassroots project aiming to empower communities to manage, share, narrate, and exchange their digital heritage in culturally relevant and ethically-minded ways.
>
> In 2007, Warumungu community members collaborated with researchers Kim Christen and Craig Dietrich to produce the Mukurtu Wumpurrarni-kari Archive. Mukurtu is a Warumungu word meaning 'dilly bag' or a safe keeping place for sacred materials. Mukurtu CMS has grown into an open source platform flexible enough to meet the needs of diverse communities who want to manage and share their digital cultural heritage in their own way, on their own terms.

The Gwich'in Digital Literacy Project used Mukurtu to demonstrate the different stages of building a digital library with Gwich'in community members. You can see the project evolve at http://digitalgwichin.ca/

Security

Data security applies to both keeping the data safe from being accessed without permission, and from being damaged or corrupted. Backing up your data is a lesson many people learn the hard way, and is part of the appeal of cloud-based services.

How will you keep your story and project materials secure? Options may include:

- Keeping your computer and software up to date
- Using anti-virus software
- Being cautious when downloading online materials
- Backing up material to external storage (e.g. external hard drive, USB)
- Backing up materials to cloud-based storage

There are advantages and disadvantages to storage methods. External storage devices can be lost or damaged. Cloud-based storage may have unacceptable terms of condition, be costly, or not work well for areas where internet connectivity is unreliable.

Preservation

Technology is always evolving. Audio information on cassette tapes would be challenging for many to access at this time. Preservation of your story materials not only includes storage, but also maintenance. Many projects are currently digitizing cultural materials in efforts to preserve the materials, and make them more accessible.

Group discussion or Individual Reflection
What might your AR story and related materials require for security, preservation, and access in 1-2 years' time? Five years from now? Ten or more?

Revenue

As your story is shared with an audience, it is important to discuss and make decisions about potential revenue generation and sharing. For example, if your story is hosted on an app you develop, will you charge others to download the app? Would you include ads and collect revenue from the ads? If your story is hosted on a third-party option such as YouTube, would any revenue be generated? Whether or not to attempt to generate revenue, to what purpose, or what to do with any unanticipated revenue should be discussed and agreed upon by the project team in accordance with the Knowledge Keeper or storyteller and the Nation they are sharing the story on behalf of.

Listen to one of the 3 CBC Radio Unreserved podcasts below. What themes are present that relate to the co-creation of AR stories, and the topics in these guidebooks?

- *Terabytes of testimony: Digital database of residential school stories opens to the public* [24]
- *Video game aims to preserve water through traditional songs* [25]
- *Indigenous virtual reality: An experiment in 'Indigenization of cyberspace'* [26]

From teacher to learner to user: Developing a digital stewardship pedagogy. [27] *Bastian, J. A., Cloonan, M. V., & Harvey, R. (2011). From teacher to learner to user: Developing a digital stewardship pedagogy. Library trends, 59(4), 607-622.*

How to care for the story materials may also be important.

24 http://www.cbc.ca/radio/unreserved/opportunities-for-reconciliation-pop-up-in-unexpected-places-1.3294030/terabytes-of-testimony-digital-database-of-residential-school-stories-opens-to-the-public-1.329665
25 https://www.cbc.ca/radio/unreserved/imaginenative-moving-beyond-the-hollywood-indian-1.3809142/video-game-aims-to-preserve-water-through-traditional-songs-1.3812162
26 https://www.cbc.ca/radio/unreserved/from-soapstone-carving-to-second-life-indigenous-peoples-in-quebec-embrace-tradition-and-technology-1.4645198/indigenous-virtual-reality-an-experiment-in-indigenization-of-cyberspace-1.4654306
27 https://www.researchgate.net/publication/236762211_From_Teacher_to_Learner_to_User_Developing_a_Digital_Stewardship_Pedagogy

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Page 42	Unsplash.com, Matthew Kwong
Page 45	Billy Smale
Page 48	Unsplash.com, Caspar Camille
Page 52	Unsplash.com, user: lifesimplyrocks
Page 54	Unsplash.com, Mael Balland
Page 61	Unsplash.com, Charlotte Butcher
Page 65	Unsplash.com, Jenelle Hayes
Page 68	Unsplash.com, user: rawpixel
Page 71	Unsplash.com, Mika Baumeister
Page 72	Mockup design from Pixeden, adapted by Hanne Pearce
Page 73	Billy Smale
Page 76	Mockup design from www.mrmockup.com, adapted by Hanne Pearce
Page 80	Unsplash.com, Samuel Zeller, adapted by Hanne Pearce
Page 82	Unsplash.com, user: Campaign Creators, adapted by Hanne Pearce
Page 83	Unsplash.com, user: rawpixel, adapted by Hanne Pearce
Page 101	Unsplash.com, Annelies Geneyn
Page 102	We Are All Related AR Project

APPENDICES

Appendix A: Memorandum of Agreement Framework

This Memorandum of Agreement framework was used by the We Are All Related AR project team. It is taken from the iPinch project (iPinch, 2015): http://www.sfu.ca/ipinch/sites/default/files/resources/fact_sheets/ipinch_moa_factsheet_jan2015.pdf

[TITLE of Memorandum of Agreement]

I. Detailed Background
A history of relationship between the parties, including past injustices and past successful collaborations. This could include, for example, a literature review that highlights the important context that a project is situated in.

II. Purpose
A description of why the MOA is being crafted, and what each of the parties hopes to gain.

III. Definition of Terms and Parties
The inclusion of a glossary and detailed list of stakeholders may help avoid confusion later in the project.

IV. Principles of Collaboration
What ethical, moral, religious and/or legal principles/protocols/codes will guide the spirit of collaboration outlined in the MOA?

V. Statement of Mutual Benefit and Potential Harms
Many collaborative projects involve both benefits and potential harms to the parties involved.

VI. Agreed Upon Actions and Responsibilities
Every MOA should include a detailed list of the actions each party will take during the collaborative project.

VII. Modification and/or Termination of the MOA
What is the process by which the MOA can be altered or terminated? How will disputes about the MOA be resolved?

VIII. Reporting
How, when and to whom reports will be submitted or presented.

IX. Timeline for Action and Future Meetings
It is important that the MOA include a timeline for when future actions or responsibilities should be met, including when the project is scheduled to end. MOAs should also be seen as living documents that need to be revised at appropriate times.

Appendix B: Augmented Reality Tech Glossary

This early definition of AR is widely cited, and frames the technology well:

Augmented reality (AR) is a variation of virtual environments (VE), or virtual reality as it is more commonly called. VE technologies completely immerse a user inside a synthetic environment. While immersed, the user cannot see the real world around him. In contrast, AR allows the user to see the real world, with virtual objects superimposed upon or composited with the real world. Therefore, AR supplements reality, rather than completely replacing it. Ideally, it would appear to the user that the virtual and real objects coexisted in the same space" (Azuma 1997).

Azuma, R. 1997. "A Survey of Augmented Reality." Presence: Teleoperators and Virtual Environments 6: 355-385.

Fiducial Markers: images that the computer imaging system can use as points of reference to link the digital and physical realms. They can also be used to generate measurements of the scene [wiki]. Many AR approaches use fiducial markers, but whether or not they use the markers to get measurements is unique to the design of the marker and the design of the system. A wide range of image types can be used as markers, from simple black and white pixel grids to detailed magazine advertisements.

Geolocative: Digital content that is tied to a particular geographic location / set of GPS coordinates. AR content may or may not be geolocative, depending on whether it is triggered by GPS coordinates or by scanning an image that could be printed anywhere.

POIs (Points of Interest): These are the real-world locations where AR content exists within geolocation-based AR applications. For instance, in the context of an AR app like Pokemon Go, these were automatically created based on mapping data for where parks and monuments are located. This automated approach failed to account for context, and players of the game would play it in inappropriate locations such as graveyards, since these were also marked as POIs.

SLAM (Simultaneous Localization and Mapping): "the computational problem of constructing or updating a map of an unknown environment while simultaneously keeping track of an agent's location within it" [wiki]. In practice, this means an AR app is able to both scan an object in 3d space and determine the position of the phone/user in relation to it, and continuously update this as the phone/user moves through space. This allows AR apps to not require markers, since they just scan objects instead. This is the technology used by self-driving cars to keep track of their location and the environment as they drive. This is typically called "Markerless AR" or SLAM by the various AR platforms.

Appendix C: 'We Are All related' AR Trigger Images

(from Stewart Steinhauer's sculpture Sweetgrass Bear, housed in the Faculty of Extension, University of Alberta)

We Are All Related	Back Right Leg	Treaty Medallion	Treaty Medallion Settler Person
			

2018 Prototype - Sample Stories
To access these stories, download the HP Reveal mobile app and follow the steps in Appendix F, and then scan the Front Crossed Feathers image below.

1.Introduction video

2.Diana's vision and Stewart's response video

3.Treaties between Nations video

4.Treaties between Nations audio

Appendix D: Script and Storyboard Templates

Audio/ Visual Script Template

Audio	Video

Storyboard Template

Scene	Scene	Scene

Scene	Scene	Scene

Scene	Scene	Scene

Appendix E: We are All Related B-Roll Ideas

B-roll idea list created by Nigel Robinson

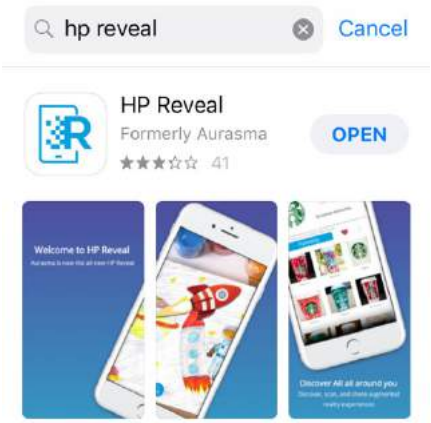
Audio
Rock Sanding
Rock Carving
Horses walking
Crowd Talking
Fiddle Music
Pow wow songs
Flute music
Background conversation of trapper and hudson's bay trader making deal
Waves on beach
Rocks falling
Sweat rocks being splashed with water
Cree, Dene, Michif being spoken
Camp fire
Saddle Lake nature sounds
Laughter
Gun shots
Smith pounding metal
Whip cracking
Old train taking off, during travel, and coming to a stop
Wagon moving along trail with horses
Canoe paddling
Cat meowing
Dog barking
Horse neighing
Car driving off, during travel, and coming to a stop
Station greeting from local radio
Any audio from local radio that talks about the community
Branch cracking
Leaves rustling

Video
Sunset/Sunrise in Saddle Lake
Driving shot of the prairies
Stewarts different Treaty 6 marker bears and other sculptures
Stewart working with rock
Stewart making tea/coffee
Stewart telling stories
Stewart's pets
Stewart and Diana chatting
Long grass blowing in the wind
Sage blowing in the wind
Saddle Lake beach
Church
The pow wow arbour
The hand games building
The Band office
Local auto store
The smaller gas stations
The townsite
Abandoned houses
Cows
Horses
Dogs
Families

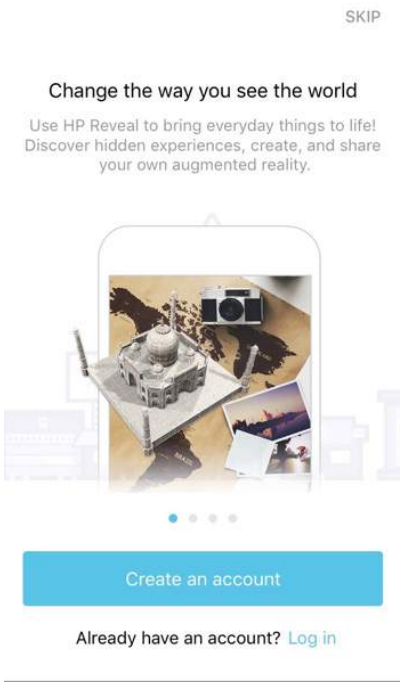
Images
Archival shots of Saddle Lake
Archival RCMP photos
Archival residential school photos (Blue Quills)
Indian act
Treaty 6
The pass system policy
Photos of Saddle Lake Indian Agent
Priests who worked in Saddle Lake
Photos from local radio

Appendix F: Instructions to View HP Reveal AR Content

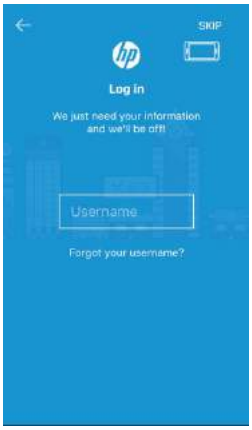
1.Download the app HP Reveal onto your mobile device (smartphone or tablet)
2.Create an HP Reveal account with your personal email address



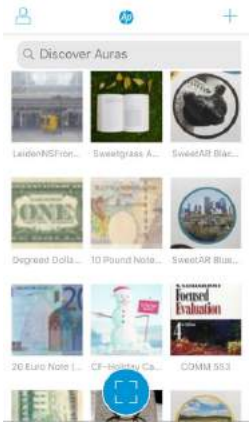
3.Login to the HP Reveal app



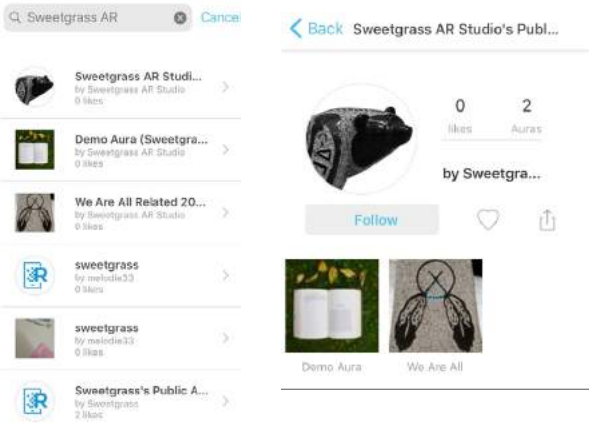
4.Search “Sweetgrass AR” in the textbox on the main page that says “Discover



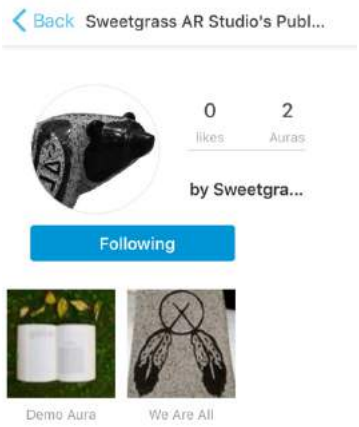
Auras”
5.Tap Sweetgrass AR Studio with the bear icon image



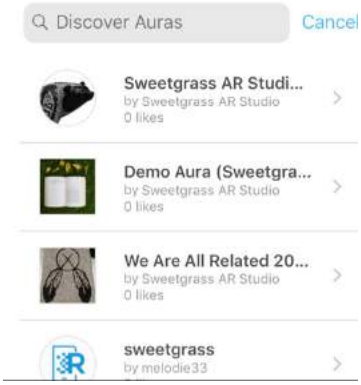
6. Tap Follow and a blue box should say Following. You can only view an account’s auras if you follow that account. Now that you are following Sweetgrass AR Studio, you can view the auras created by the Sweetgrass account in HP Studio.



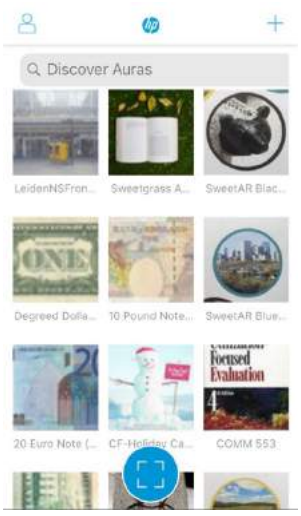
7.Tap Back on the top right of the screen



8.Tap Cancel to get back to the main page



9.Select the blue circle with white square corners at the bottom of the screen. This activates the HP Reveal viewfinder to locate auras. You will see white circles expanding and contracting as the app searches for a trigger image.



10. Point your phone towards the book image below:

- An new image overlay should appear over the book image
- Tap the image to load the University of Alberta Faculty of Extension website

11. To close the viewfinder tap the magnifying glass icon at the bottom of the screen

Thank You!

For additional information, please contact:

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The University of Alberta is located in ᐊᒥᐢᑲ·ᒌᐋ·ᐢᑲᐦᐃᑲᐣ (Amiskwacîwâskahikan) on Treaty 6 territory, traditional lands of First Nations and Métis people.