Introduction to multimedia for atlas contributions

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Topics Covered

- Protocols for data/material collection
- Text
- Images
- Audio
- Video
- GPS
- Request help
Protocols for data/material collection

1. Get permission before starting
2. Record information about data/material collected
3. Write or record your reflections on the experience
4. Regularly back up data/materials at the school, and by sending to GCRC

1) Protocols - permission

- Get written or recorded permission by the creator or participant to use collected information.

✓ We are bound by Nunavut Board of Education, Carleton University, and Nunavut Research Institute rules to have contributing individuals fill out the appropriate consent form or provide oral consent to acknowledge their permission to use material recorded.
2) Protocols - records

- For the records of the project, and for future users, it is also important to write down:
  ✓ **Who** - was interviewed, or contributed material (person’s name)
  ✓ **What** - was recorded (e.g. what was in the picture, what was talked about in an interview)
  ✓ **When** - was the material recorded (date)
  ✓ **Where** - was the material recorded (community, travel route, placename)
  ✓ **Why** - was the material recorded
  ✓ **How** - was the material recorded (e.g. picture, audio, GPS, and settings used)
  ✓ **By Whom** - who collected the information (your name)

3) Protocols - reflect

- As a **student researcher**, your experiences contributing to this project are important. It is also important to record your thoughts on particular experiences, trips, interviews, workshops while they are still fresh in your mind.
- Take some time after an activity (could be a trip, interview, classroom activity, workshop, etc.) to reflect on what you learned. **Write down** your thoughts, or **record** them by speaking into the audio record.
  ✓ This will **help you remember** the experience if you ever want to go back to it.
  ✓ This will **help others learn** about your experiences.
  ✓ This will help when you work on **creating your own stories** with the data/material recorded.
4) Protocols - updates

- Every time you collect new information it is important to **update your central record** of the who, what, when...
- It is important to **download** any digital data to your computer soon after collecting the new material, and create a **backup** copy (on a CD, a memory key, or by providing a copy to your teacher)
- On a regular basis (e.g. once a week, or once a month) **provide a copy** of your central records, and your backup files, to your teacher, who will pass it along to GCRC staff so that we can add to the overall project database and begin to work with the information.
Text - general considerations

- Use **Unicode** fonts for ᐃᓄᒃᑎᑐᑦ
  - UTF-8 supported in the atlas framework and that means fonts like Pigiarniq, NunacomU, Ballymun, Euphemia UCAS work
- Avoid “smart quotes”
- Where possible, divide your content to keep the text in smaller chunks (200 words)
- **Think about the story** you want to tell, and how the user might see - or interact with - the content you are creating (i.e. what else might be included beside or with your text?).

Text - linking with media

- Photos, video, and audio may be embedded with the text
- Audio may be connected to text and it may play when moused over
- Text may be connected to other objects like map features or areas on photos
Images

Pictures - general considerations

**General**
- Use a tripod or monopod, even a small one
- Read the camera docs and use the scene settings when possible
- If photographing a dark subject in a bright setting, use camera scene settings or get closer so darker fills more of the photo
- Record in high quality
- Make sure date & time are accurate
- Keep eyes out for Cameras with GPS

**Indoor**
- Get as much light as possible - bring in lights, open curtains, etc.

**Outdoors**
- Avoid pointing into the sun
- Consider a polarizing filter when glare and reflections are present
- Keep the camera warm when not in use
- Record a GPS waypoint wherever you take a picture
Pictures - recording

1. Set the **time and date** settings
2. Set the **recording quality** settings
   i. Consider tradeoffs - highest quality, largest file size
   ii. We suggest to use highest quality given camera memory capacity
   iii. Allows the greatest flexibility for later file conversion for different uses
3. Avoid using the LCD screen outside, in cold weather.
4. Make sure **battery** is charged and sufficient **memory** is available
5. **Monitor** remaining battery and memory during use
6. **Save files** to computer, and make back-up copy as soon as possible

Audio

“Pangniqtuuq”
Meaning: Place of many bull caribou
Dynamic vs. Condenser

• **Dynamic** microphones are renowned for their ruggedness and reliability. No batteries are required but you must plug into a “Mic” port.
• **Condenser** microphones are preferred for their very uniform frequency response and ability to respond with clarity to transient sounds. They generally require their own battery power and provide Line level output for a Line-In port.

Omnidirectional vs. Directional

• **Omnidirectional** microphones record sound in all directions while **directional** microphones respond best to signals in a specific directions.

Audio - general considerations

**General**

• Use a directional microphone if trying to isolate a sound/speaker
• Record in high quality - it can be reduced later
• If possible, monitor the audio using headphones to ensure the recording levels are correct

**Indoor**

• Eliminate sources of echo - close curtains, choose a carpeted room with soft furniture, etc.

**Outdoors**

• Use foam and/or a “dead cat” to shield the microphone from wind - even if it doesn’t seem that windy to you
Audio - recording

1. Set the **time and date** settings
2. Set the **recording quality** settings
   i. Consider tradeoffs - highest quality, largest file size (shortest time)
   ii. We suggest to use medium quality given audio recorder memory capacity
3. Set the **record level** (level of sound sensitivity)
4. Make sure **battery** is charged and sufficient **memory** is available
5. **Monitor** remaining battery and memory during use
6. **Save files** to computer, and make back-up copy as soon as possible

Video

[Image of two people speaking into microphones]
Video - general considerations

• **Audio & image guidelines** apply even more strongly to video: light, tripod, headphone monitoring, directional mic, etc.

• **Avoid unnecessary motion**
• **Avoid zooming and panning**
  • If you must zoom and pan, do it about 4x slower than you’re tempted to

• **Keep segments short** - pause and resume recording whenever able to keep clips short

• **Vary the footage** by filming bits from different angles/locations in a session

• Consider also using a second “B roll” **camera** when conducting longer sessions (such as interviews) to enable some variety/options during the editing stage

Video - recording

1. Set the **time and date** settings

2. Set the **recording quality** settings
   i. Consider tradeoffs - highest quality, largest file size (shortest time)
   ii. We suggest to use medium quality given video recorder memory capacity

3. Use external **microphone** wherever possible, or be sure to position the camera for maximal audio recording

4. Make sure **battery** is charged and sufficient **memory** is available (or sufficient blank mini DV tapes are available)

5. **Monitor** remaining battery and memory during use

6. **Save files** to computer, and make back-up copy as soon as possible
GPS - What is GPS?

- an instrument that determines geographic location through satellite signals
- GPS receiver can record location as a:
  - waypoint
  - track
  - route
- needs at least 3 signals to determine accurate location
GPS locations

- **Waypoint**: a geographic coordinate that defines a specific location as a point (e.g. lat/long or easting/northing)

- **Track**: a track is a line (for instance, a trail) recorded by a GPS unit while traveling

- **Route**: similar to a track, but created manually by establishing “route segments” between waypoints

GPS Considerations

- un-obstructed path for the satellite signal (outside, as much open sky as possible)

- keep it warm (use external antenna and keep the GPS unit inside your parka)

- using the compass function, hold flat
GPS - Datum

- It is a fixed reference point or basis to which other information is related.
- Geodetic datums define the size and shape of the earth and the origin and orientation of the coordinate systems used to map the earth.

WGS84

- World Geodetic System (WGS) 1984 (revised in 2004 and valid until 2010)
- reference system developed for by US Defense Mapping Agency, standard for most GPS and GIS (Geographic Information Systems)
GPS - Coordinate System

- A coordinate system is based on **mathematical rules**, and is used to measure horizontal and vertical distance on a surface.
- It allows us to identify the location of points by means of unique sets of numerical or angular values.

**Latitude/Longitude** (lat/long) is a coordinate system based on angles (not linear distances) along a pair of axes from some origin
- conforms nicely with the near-spherical shape of the Earth, which makes the lat/long system highly accurate.

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Latitude/Longitude

- **Latitude** is a measure of how far north or south of the Equator a point is located.
- **Longitude** is a measure of how far east or west of the prime meridian a point is located.

**Measured in:**
- hddd.dddd°
- (decimal degrees)
GPS - Turning on and Setting up

- Examples based on Garmin GPSMap 76CSx
- after you turn on the GPS unit, it needs to acquire the satellite signal to be able to determine the accurate time and location
- basic pages (utilities)
- GPS unit also needs to be set up properly to ensure accuracy (horizontal +/- 15m)

Units

- Scroll through windows in the GPS using the PAGE button
- Select ‘setup’ using the ENTER button
- here you can set various personal preferences, but some very important ones are: TIME and UNITS
Units

- Select 'time' to specify the right time zone
  - Time Format: 24hr
  - Time Zone: Ontario (same as Nunavut)
  - UTC Offset: automatic
  - Daylight Savings Time: Auto
- Select 'units' to specify the units for locational and distance information
  - Position format: hddd.ddddd
  - Map Datum: WGS84
  - Distance/Speed Metric
  - Elevation (Vert speed): Meters/sec
  - Depth: Meters
  - Temperature: Celcius
  - Pressure: Millibars

Calibration

- Calibration options:
  - compass
  - altimeter
- Follow prompts to complete calibration
  - for altimeter helpful to already have information on elevation and pressure
Using GPS while travelling

Acquire tracks

- select 'tracks' icon in SETUP
- track log must be turned ON
- do not 'wrap when full'... monitor amount of data saved
- record a point at a regular time interval (e.g. every 30sec.)
- can save to a data card
- automatically tracks where you travel - DON'T save the tracks, just upload directly
Recording a waypoint

- hold down ENTER button to mark a waypoint (place of interest)
- edit icon and notes - perhaps best to do this after the fact
- be sure time and date stamp remain
- press OK to save
- can use ROUTES function to track back to/between waypoints

Working with media

...editing and saving your information
Text - editing

• Get your text into a simple document organized by short blurbs that will appear with the features you want to highlight to tell a story.

• If it helps, develop a basic spreadsheet that will help keep your recorded information on “Who, What, When, Where, How...” together with the text (or other relevant media).

Pictures - editing

• Make a backup of your raw (original) files.

• Use an image editor (e.g. iPhoto, Microsoft Picture Manager) to play with: Exposure, Saturation, Contrast, Sharpness (careful not to overdo it).
  ✤ For the edited product, “Save As...” another file name.

• After adjustments, crop and resize while keeping proportions. Try no wider than 320 pixels.

• Photographs should be saved as JPEG files.

• Graphics (logos, graphs, diagrams) should be saved as PNG or possibly SVG if starting from a vector format.

• Embed GPS coordinates in pictures wherever possible.
Audio - editing

- Make a backup of your raw (original) files.
- Use an audio editor (e.g. Audacity) to play with: Amplitude, Levels, and Noise Reduction (careful not to overdo it)
  ✤ For the adjusted original product, “Save As...” another file name (use .wav or .mp3 to maintain full quality).
  ✤ For use on the internet, trim the sound down to the clip you want to highlight and share, “Save As...” another file name (use .ogg [Ogg Vorbis format] for condensed audio).

Video - editing

- Make a backup of your raw (original) files.
- Use a video editor (e.g. iMovie, Windows Movie Maker) to play with: Audio levels, Noise Reduction (careful not to overdo it)
  ✤ For the adjusted original product, “Save As...” another file name (use ??? to maintain full quality).
  ✤ For use on the internet, trim the sound down to the clip you want to highlight and share, “Save As...” another file name (use .mov??? [Quicktime broadband medium format] for condensed video).
GPS - Saving to the computer

In order to load the tracks onto your computer you first need:
- USB cable
- necessary software
  - Mac - GPS Babel/Load My Tracks, GPS Photo Linker, Google Earth
  - PC - GPS Trackmaker, Grazer/Location Stamper, Picasa, Google Earth

Saving to the computer (Mac)

- attach USB cable to GPS and computer
- turn on GPS (may have to work with ‘GPS off’ if satellite signal cannot be acquired)
- use GPS Babel OR Load My Tracks to load/save tracks onto the computer
  - choose or create a folder where you will store all GPS data
  - choose a file name convention that allows you to remember which trip/data you are accessing later
GPS Babel

Load My Tracks

Saving to the computer (PC)

- attach USB cable to GPS and computer
- turn on GPS (may have to work with ‘GPS off’ if satellite signal cannot be acquired)
- use **GPS Track Maker** to load/save tracks onto the computer
  - choose ‘GPS’ from main menu, and appropriate GPS interface
  - select the type of data you want to download (points/tracks/routes)
  - ‘Save as’ .gpx file to export
Link data to photos (Mac)

- load photos into GPS Photolinker
- check save options preferred
- set up linking options
- make sure correct track is ‘active’ (file menu)
- run the batch processing to link to track points, or manually link to waypoints
Link data to photos (PC)

- Open Grazer and specify file locations of GPS tracks and photos to link

  OR

- Open Location Stamper (**try RoboGeo??**)

- Add photos, add tracks

- Apply tracks...set location anyway
Displaying Results

• Open the .gpx track/waypoint file in Google Earth to see accuracy of location

• Mac - Open iPhoto and export with ‘iPhoto to google earth’ (.kmz file - have to install this program first)

• PC - Open Picasa and choose Import; specify the pictures to import, and the folder to save the newly created album, then you can either just view in Google Earth, or export the picture into the .kmz format
GPS - Displaying Results

• Open the .gpx track/waypoint file in Google Earth to see accuracy of location

• **Mac** - Open iphoto and export with ‘iphoto to google earth’ (.kmz file - have to install this program first)

• **PC** - Open Picasa and choose Import, specify the pictures to import, and the folder to save the newly created album, then you can either just view in Google Earth, or export the picture into the .kmz forma
Alternatives

- A low-cost purchase options for Mac (HoudahGeo) or PC (Jet Photo Studio Pro) will also allow you to do all of the processing from start to finish, including export to Google Earth for a small fee (around $30-40)
- Moderate cost purchase options for PC have other functionalities (Fugawi, Ozi Explorer) (around $80 - $200)
- View/manipulate track and waypoint data for Mac (Qgis) or PC (Map Window GIS)
- Fugawi, Ozi Explorer

Request help at any time

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