Creating a Podcast:
Basic Tools and Techniques

Presented by the Media Creation Lab

Contents

1. History

Broadcasting by any other name

1.1. History: Pre-Internet

- **1901:** Discovery of wireless broadcasting
- **1920:** First commercial radio station (US)
- **1930s-1940s:** "Golden Age of Radio"
- **1930s:** TV broadcasting
- **1954:** Colour TV
- **1960s:** Widespread TV adoption

(Britannica, 2010; Britannica, 2021; DARPA, n.d.; Wikipedia, 2022a; Wikipedia, 2022b)

1.2. History: Internet & Beyond

- **1969:** ARPAnet
- **1980s:** Satellite broadcasting
- **2001:** Apple iPod
- **c 2004:** "Podcast"
- **2005:** Distribution on Apple iTunes

(Britannica, 2010; Britannica, 2021; DARPA, n.d.; Wikipedia, 2022a; Wikipedia, 2022b)

2. Types

Tried-and-true genres & formats

2.1. Types: Genre

- Culture/entertainment
- Education/information
- News/politics
- Self-help
- True crime

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2.2. Types: Format

- Debates/discussions
- Interviews
- Recaps
- Reports

3. Workflow

Planning, producing, & publishing

3.1. Planning: Starting With The End

1. **Audience?**
   - Familiarity with topic(s)
   - Personal factors
   - Situational factors
2. **Technical specs?**
   - Duration
   - File format/quality/size
   - Volume in decibels (dB)

(Glendon Digital Media Lab, 2018a)

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3.2. Planning: Job To Be Done

Imagine your podcast is a product:

1. What 'job' are listeners 'hiring' your podcast to do?
2. What are their 'requirements' for the 'job'?

(e.g. Christensen, 2019)

3.3. Planning: Building a Story

1. **Story 'question'?**
   - "Will ... ?," "Can ...?," "Do ... ?," "How ...?," "Why ... ?"
2. **Story 'answer'?**
3. **Characters (people)?**
4. **Challenges & actions?**
5. **What to reveal/hide?**

(Glendon Digital Media Lab, 2018b)

3.4. Planning: Research

- **General overview:** Digital/physical documents
- **Interview(s)**
  - Ethical protocol
  - Pre-research
  - Focused set of 'open' questions ("How" & "why")
  - General-specific-general order (warm-up, cool-down)
  - Challenges faced & actions done
  - Listening, silence, tone

(Glendon Digital Media Lab, 2018c; York University, 2022)

3.5. Planning: Creating a Script

1. **Method(s)?**
   - Interview, recap, report, debate, re-enactment
2. **Format?**
   - Level of structure (low, medium, high)
   - Exemplars
3. **External artifacts?**
   - Music, effects, clips
   - Permissions/licenses

(Glendon Digital Media Lab, 2018d)

3.6. Planning: Pre-Production

1. **Recording schedule?**
   - Date, day, time, duration, breaks
   - Location, travel
2. **Locations survey?**
   - Background noise, disruptions
   - Layout (people, power outlets, restrooms)
3. **Equipment?**
   - Number of people

(Glendon Digital Media Lab, 2018f)

3.7. Recording

1. **Diet**
   - Avoiding dairy products & carbonated drinks
2. **Warmup**
   - Tongue-twisters
3. **Positioning**
   - Mic 4-6 inches away mouth
4. **Method for reading/taking notes**
   - Electronic device vs printed documents

(Glendon Digital Media Lab, 2018f)

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5. Testing recording/mic volume
- Peak volume: -12 dB (up to -6dB)

6. Mitigating distractions
- Smartphones, other talkers

7. Timers
- Audibility/visibility within recording

8. Buffers in recording
- 3-5 sec of silence/ambience at beginning & end

(Glendon Digital Media Lab, 2018f)

3.8. Editing: Asset Management

1. **File organization?**
   - Folders (media type, session, person, …)
   - Naming convention
2. **Music, effects, & clips?**
   - Copyright-clear vs royalty-free
     - Rights owners
     - Paid libraries
     - Original performances

(Glendon Digital Media Lab, 2018g)

3.9. Editing: Post-Production

1. **Audio cleaning?**
   - Background noise, pops
2. **Music, effects, & clips?**
   - Timing
   - Mood
3. **Gain?** (Change to recording volume)
   - Volume for primary audio (speech): -12 to -6 dB
   - Volume for secondary audio (music): -24 to -18 dB

(Glendon Digital Media Lab, 2018g)

3.10. Publishing

1. Channel(s)?
- Coursework: Course-content system
- General: Services with free/paid plans, such as
  - Buzzsprout
  - Riverside
  - Soundcloud
  - Spotify
  - YouTube

4. Recording (Zoom H4n)

Best practices apply to all devices

4.1. Zoom H4n: Features

- **Input options:** Built-in mics and/or external mics
- **Recording-area shapes:** 90-degrees or 120-degrees
  - Front-facing or front-and-back-facing, respectively
- **Modes:**
  - Stereo: Two channels (input directions)
  - 4CH: Four channels (input directions)
  - MTR: Mixed-track recording (play & record at once)
- **Built-in storage:** SD card

4.2. Zoom H4n: Basics

1. Locate *Hold*/power button (left side, bottom)
2. Slide button toward I/O icon and hold (2 sec)
3. Wait 2-3 min for device to power on
4. Locate *Menu* button & scroll wheel (right side, top)
5. Use to *Menu* & wheel to navigate/select screens
   - Wheel turn: Move highlighter
   - Wheel press: Select highlighted option
   - *Menu* press: Cancel & return to prior screen

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6. Navigate/select ***"Mode"*** -> ***"Stereo"***

7. Return to default screen

8. Locate and press **Mic** button (front side, left edge)

9. Twist ends of built-in mics to **90** or **120** label

4.3. Zoom H4n: Prep/Monitoring

1. Locate & press *Rec* button (front side)
2. Locate *Rec Level* volume buttons (right side)
3. Speak towards mics as intended/expected
4. Observe volume-meters on screen
5. Note peak values along dB scale
6. Adjust *Rec Level* (*"Mic Volume"*) so peaks are ~12 dB
7. (Optional) Connect headphones (3.5 mm, left side)
8. (Optional) Adjust *Vol* (output) volume buttons (left side)

4.4. Zoom H4n: Recording

1. (From standby) Press **Rec** (or Play/Pause) button to start
2. (Optional) Press **Rec** while recording to set **marks**
3. (Optional) Press Play/Pause to pause/resume
4. Press Stop button to stop recording

4.5. Zoom H4n: Playback

1. Press Play/Pause to play/pause
2. (Optional) Press Prev/Next buttons for marks/tracks
3. (Optional) Use **Menu** & wheel to navigate folders

4.6a. Zoom H4n: File Transfer (Cable)

1. Connect USB cable (Micro-USB port, left side)
2. Connect cable to computer (USB-A port)
3. Navigate/select **"USB"** -> **"Storage"**
4. (Computer) Open **H4N_SD** disk drive
5. (Computer) Navigate to appropriate folder
   a. Primary-level folders: **4CH**, **MTR**, **Stereo**
   b. Secondary-level folders: **Folder01** to **Folder10**
6. (Computer) Copy and paste files (WAV or MP3)

4.6b. Zoom H4n: File Transfer (Card)

1. Slide **Hold**/Power button to I/O icon & hold (2 sec)
2. Remove SD card from slot (right side, bottom)
3. Insert card into computer
4. (Computer) Open **H4N_SD** disk drive
5. Navigate to appropriate folder
   a. Primary-level folders: **4CH**, **MTR**, **Stereo**
   b. Secondary-level folders: **Folder01** to **Folder10**
6. (Computer) Copy and paste files (WAV or MP3)

4.7. Zoom H4n: Resources

- York University Libraries - Media Creation Lab
  - http://bit.ly/mcl-yu
- Zoom
  - https://www.zoom.jp/helpcenter/en/products/H4nProBlack/

5. Recording Practice

Using what you *know* and *have*

5.1. Practice: Story Question

- **How did your favourite works of fiction make you feel (the first time you experienced it)?**
  - Name?
  - Context of first experience?
  - Conflict(s) in story? (avoid spoilers)
  - Emotion(s) experienced?
  - Impact?
- **(Alternative) Consider another topic**

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5.2. Practice: Tips

- Wait 3-5 sec to start talking & stop recording
- Incorporate (repeat) questions being answered
- Include pauses between answers to questions
- Avoid sound-reflecting surfaces
    - (If applicable) Cover in blanket to limit echoes

6. Editing (Audacity)

Power to craft using open-source means

6.1. Audacity: Overview

- **Open-source:** Free, established community
- **Compatibility:** Windows, Mac, Linux
  - https://www.audacityteam.org/download/
- **Plugins:** Support for more audio formats (M4A)
  - https://support.audacityteam.org/basics/installing-ffmpeg
- **Standard features:** Recording, audio effects

6.2. Audacity: Installation

Windows

1. Open executable-file (*.exe)
2. Follow prompts of Setup Wizard

macOS

1. (If applicable) Open package file (*.pkg)
2. Open disk-image file (*.dmg)
3. (In window) Drag Audacity icon to Applications shortcut

6.3. Audacity: UI Overview

- **Menu bar:** *File, Effect, View*
- **Toolbar:** Playback, recording, selection, zoom
- **Volume meters:** Input levels & output levels
- **Timeline**
- **Canvas:** Tracks/lanes & clips within
- **Info panel:** Project rate, timestamps, playback speed

6.4. Audacity: Importing & Lanes

1. *File* -> *Import ...* -> *Audio*

- Default: Imported files have separate tracks/lanes
- Lanes have separate control panels
  - *Solo* button: Mutes all other lanes

6.5. Audacity: Three Lines

- **Marker:** Black vertical line (at project start by default)
  - Click body of track/clip or click Skip To buttons
- **Skimmer:** White vertical line
  - Appears while project *stopped*
  - Move cursor along timeline
- **Playhead:** Green triangle with black vertical line
  - Appears while project *playing* or *paused*
  - Click timeline or click Play button (plays from marker)

6.6. Audacity: Playback

- **Pause [P]**
  - Freezes/unfreezes playhead at position in timeline
- **Play [spacebar]**
  - Plays from marker position
- **Stop**
  - Clears playhead, enables editing (clip-selection)

6.7. Audacity: Clip Selection

Select by clip-head (section with title)
 1. Single-click head to select clip

Select by clip-body (waveforms)
 1. Double-click body to select clip

Select by control-panel (single-clip lane)
 1. Click *Select* button to select entire lane

6.8. Audacity: Clip Arrangment

Click & Drag (need sufficient space)
  1. Click clip-head & hold
  2. Drag clip left/right

Cut & Paste (need sufficient space)
  1. Select clip
  2. Right-click clip & select *Cut* [Ctrl/Cmd + X]
  3. Click lane (set marker)
  4. Right-click lane & select *Paste* [Ctrl/Cmd + V]

6.9. Audacity: Clip Trimming

Split & Delete
1. Set marker
2. Right-click clip & select *Split Clip*
3. Select unwanted clip & press Backspace or Delete key

Drag Edge
1. Point to edge (between clip-head & nearest waveform)
2. Look for double-arrow cursor
3. Click & drag edge inward

6.10. Audacity: Monitoring Volume

- *Watching* volume meter is important
- Blue lines mark (local) peaks
- Ideal volume (peak values):
    - Primary audio (speech): -12 dB to -6 dB
    - Secondary audio (music): -24 dB to -18 dB

6.11. Audacity: Editing Volume

***Normalize* function** (set volume *to* dB value)
1. Select clip
2. Open ***Effect*** -> ***Volume & Compression***
3. Select ***Normalize ...*** function
4. (Window) Set ***Normalize peak amplitude*** to [-12] dB

Track-wide adjustment (change *by* dB amount)
1. Click & drag slider in ***+/-*** scale of lane control-panel

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6.12. Audacity: Clip Fading

Fading functions

1. Select portion of clip (click & drag)
2. Open **Effec**t menu
3. Select **Fading**
4. Select appropriate function

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6.13. Audacity: Reducing BG Noise

***Noise Reduction* function**

1. Select portion of clip with background noise (sample)
2. Open ***Effec*t -> *Noise Removal and Repair***
3. Select ***Noise Reduction ...*** function
4. (Window) Click ***Get Noise Profile***
5. Repeat Steps 2 & 3
6. Adjust values (***Noise reduction***) & click ***Preview*** button
7. Click ***OK*** button

6.14. Audacity: Recording

1. Click *Audio Setup* button (toolbar)
2. Select *Recording Device* & select device from list
3. Click Record Meter (mic icon) button
4. Select *Start Monitoring* & speak as intended/expected
5. (Optional) Adjust Recording Level slider (volume meter)
6. Click Record button [R or Shift + R for new track/lane)
7. (Optional) Click Pause button to pause/resume
8. Click Stop button

6.14a. Audacity: Recording with H4n

1. (Recommended) Turn off H4n
2. Connect USB cable (Micro-USB port, left side)
3. Connect cable to computer (USB-A port)
4. Navigate/select ***"Audio I/F"***
5. Select ***"Frequency"*** -> ***"48kHz"***
   - ***"44.1kHz"*** is possible with macOS computer
6. Select ***"Connect"***

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(macOS) Ensure computer has matching frequency:
 1. Open *Applications* -> *Utilities* folder
 2. Open *Audio MIDI Setup* app
 3. Select *H4* in sidebar
 4. Set *Format* to *48,000 Hz*

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Set up H4n in Audacity:

1. Select ***Audio Setup*** -> ***Recording Device*** -> ***Microphone (H4)***
2. Select ***Record Meter*** (icon) -> ***Start Monitoring***
3. (Zoom H4n) Adjust ***Rec Level*** as needed
4. Press Record button start recording
5. (Optional) Press Pause button to pause
6. Press Stop button to stop recording

6.15. Audacity: Saving & Exporting

Saving (project file unique to Audacity)
1. Open **File** -> **Save Project**
2. Select either **Save Project** or **Save Project As ...**
3. Set location & name

Exporting (standalone file in standard format)
1. Open **File** -> **Export**
2. Select **Export as [format]**
3. Set location & name

7. Editing Practice

Experiment

7.1. Editing Practice

- Consider sharing recordings
  - Edit single recording
  - Edit entire recordings sequence
  - Group quotes/phrases by category (topic, theme)

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Ver 2.8 (2023-03-19)