

GeoEd Video Design Considerations and Solutions for Geoscience Majors



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Geoscience Video Design

- ❖ *Video Design Considerations*
- ❖ *Cognitive Theory of Multimedia Design*
- ❖ *Recommended Solutions*
- ❖ *Video Production Overview:
Hardware & Software*

What is your choice?

GeoEd Design Considerations

Set Goals-> Decide scope of our content, audience, and primary usage environment.

Write Narration-> Choose a style (Formal? Conversational?). Hook? Ending? Terms?

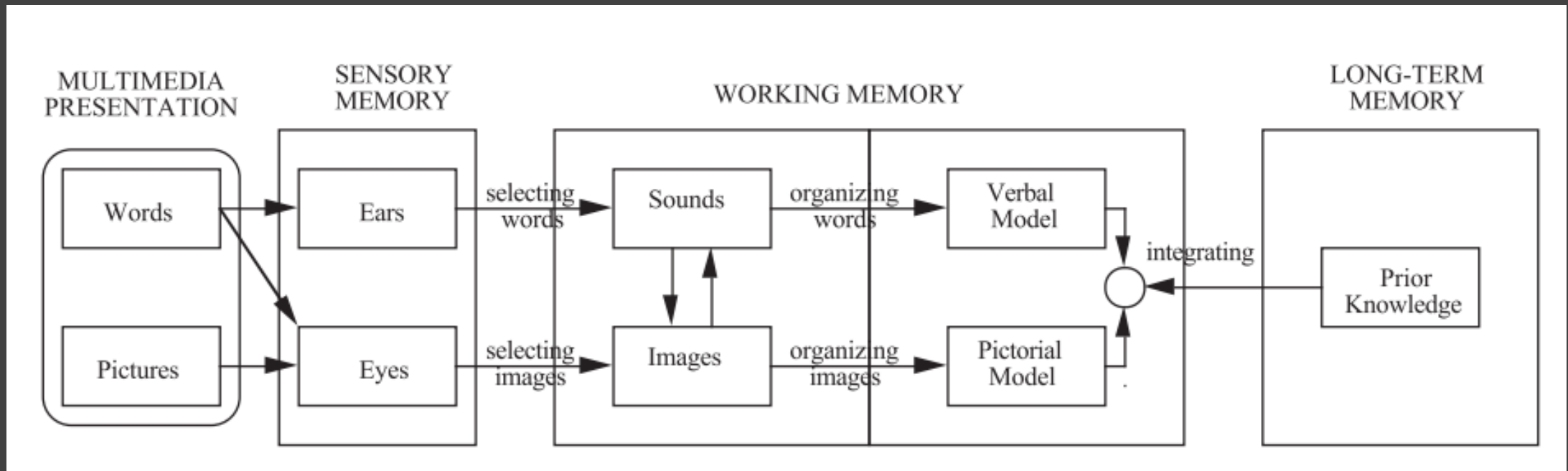
*Create Visual Elements-> Create by yourself?
Revise from others' work? Use others' work?
Static or Dynamic? Film? Simulations? Conceptual models or animation? How to match the narration?
Would your audience have a difficulty to understand?*



No matter what is your choice,

Cognitive Theory of Multimedia Design

To make these decisions, in practical, two major considerations:
production efficiency (production side) and video effectiveness (teaching side)

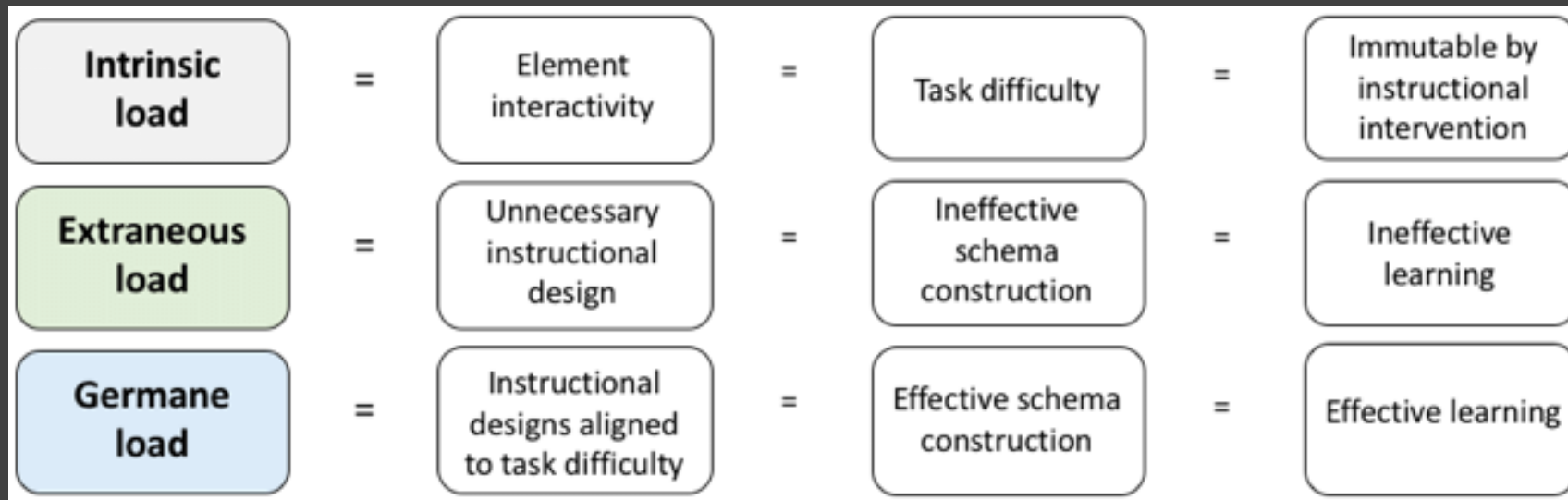


Flow chart representing the cognitive theory of multimedia learning (Mayer, 2018)

Two Directions

Manage intrinsic cognitive load: segmenting, modality

Reduce extraneous cognitive load: Coherence, signaling, redundancy, spatial contiguity, temporal contiguity



Cognitive Load Theory
(Sweller, 1988, 1992)

segmenting

Make a long video into series of short videos.

The screenshot shows the Khan Academy Help Center interface. At the top, there are navigation links for 'Community' and 'Help Center', the Khan Academy logo, and links for 'Report a Problem' and 'Sign in'. Below this is a dark blue banner with the text 'How can we help?' and a search bar containing the placeholder text 'Start your search here...'. The main content area has a breadcrumb trail: 'Khan Academy Help Center / Teachers & Coaches / How-to guides for teachers & coaches'. The article title is 'What is self-paced Mastery?' with a 'Follow' button to its right. The article text explains Khan Academy's mission and the Mastery System, and describes teacher tools and supports.

Community Help Center

Khan Academy

Report a Problem Sign in

How can we help?

Start your search here...

Khan Academy Help Center / Teachers & Coaches / How-to guides for teachers & coaches

What is self-paced Mastery?

Updated 4 hours ago

Khan Academy's mission is to offer a free, world-class education to anyone, anywhere. In order to move toward this mission, one of the things that the Khan Academy team provides is a system to track students' learning progress in all courses, all devices, and in many languages. We call this the Mastery System.

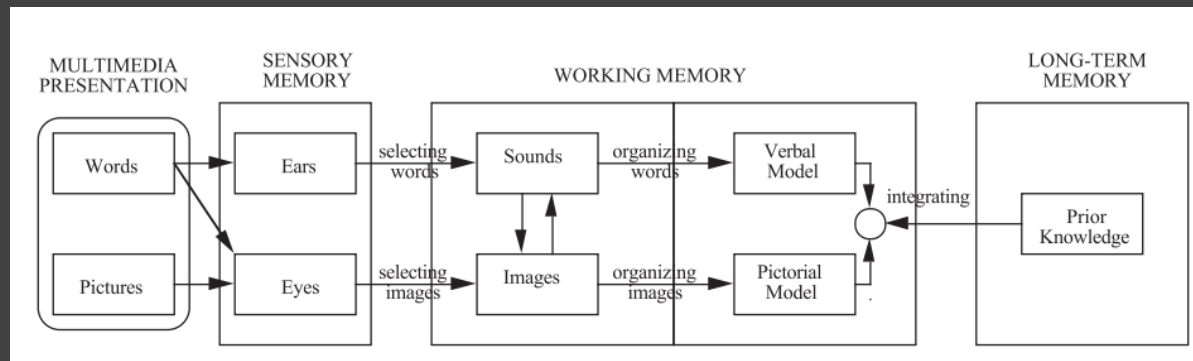
Some of the things we have to offer are teacher tools, reports, and supports that help teachers incorporate student-paced mastery learning into their classrooms. Teachers receive detailed data about each student's performance when they complete practice. Teachers can also help by assigning content to their students as a part of their lessons.

Follow

Manage Cognitive Load

Modality

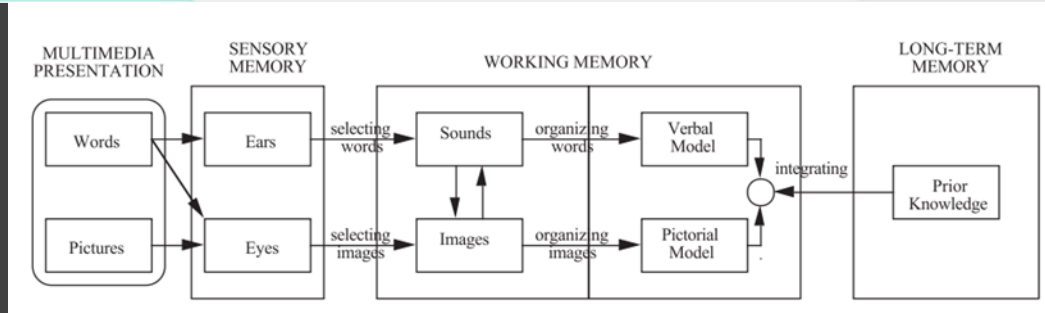
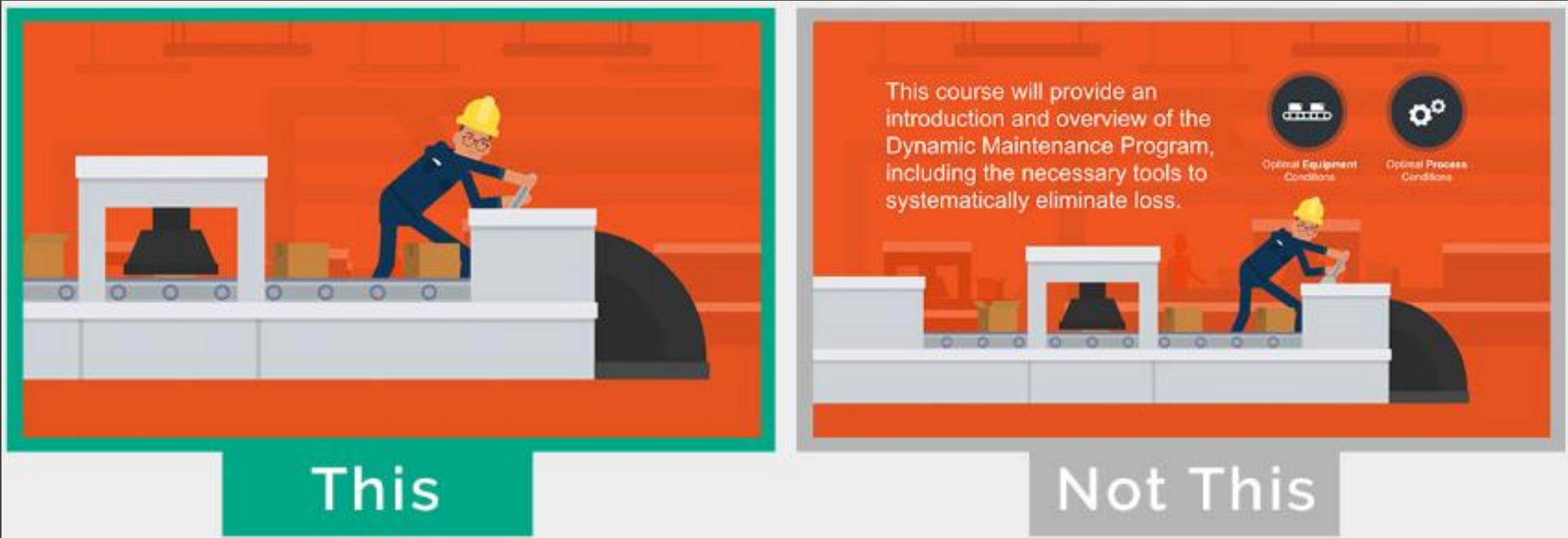
Voiceover



Reduce Cognitive Load

Coherence

Information On Time Only



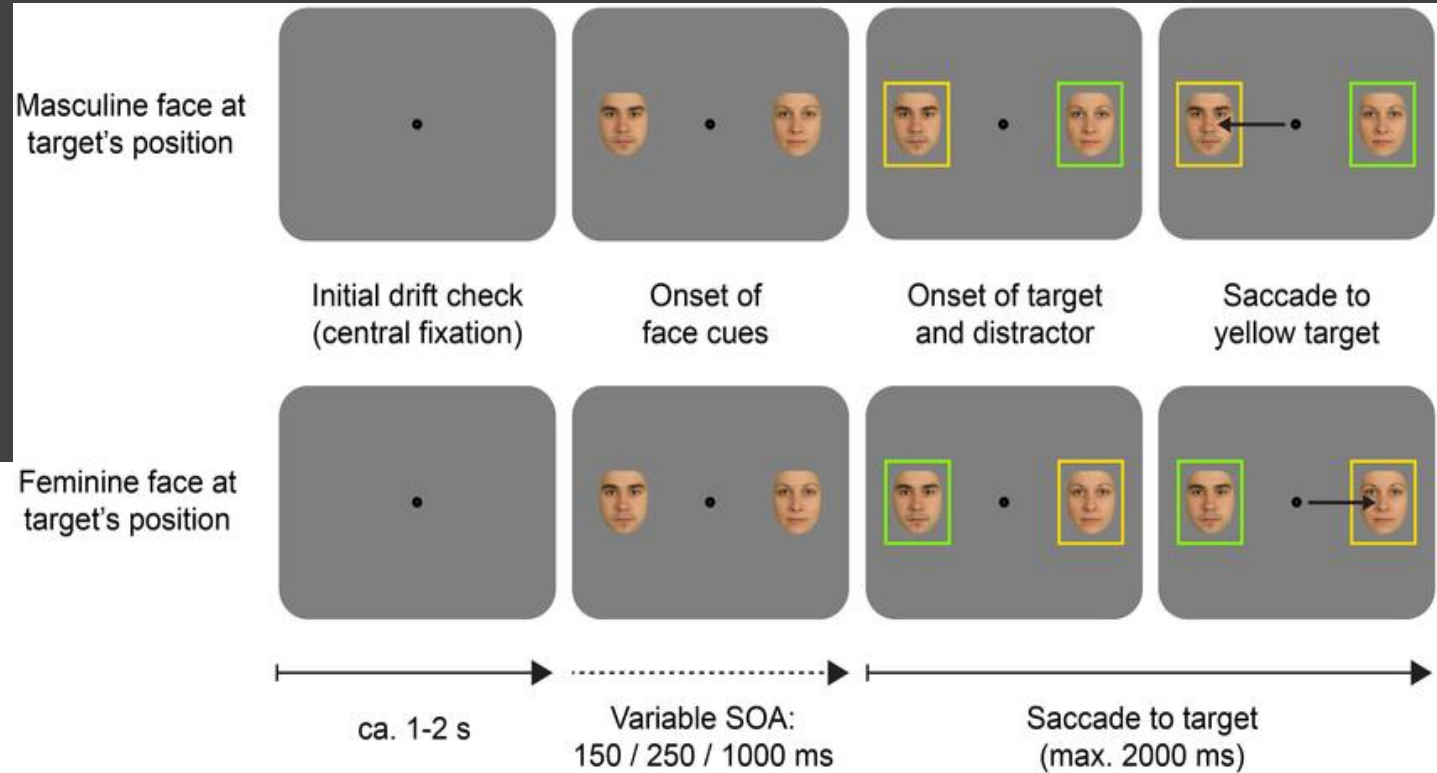
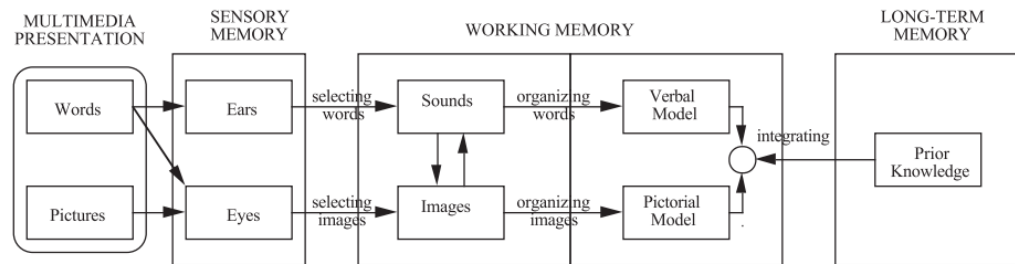
Reduce Cognitive Load

Cuing or Signaling

Text-based Cues

Sound-based Cues

Picture-based Cues



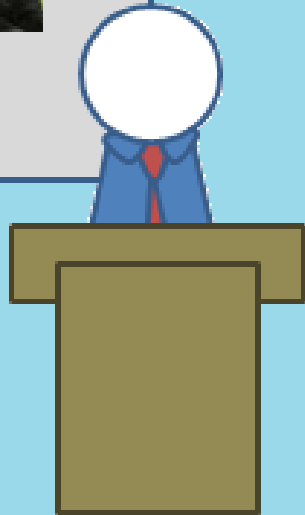
Redundancy

Redundant Instruction



-Bears enjoy eating Honey

Bears enjoy eating Honey.



Non-Redundant

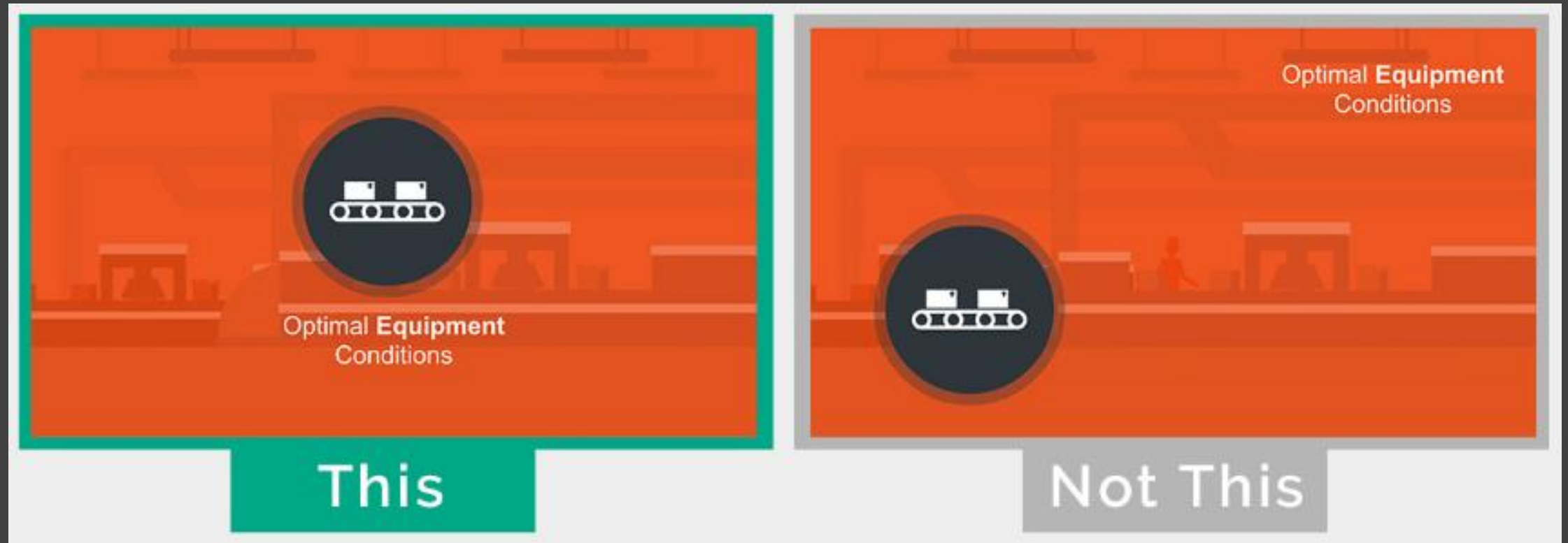


Bears enjoy eating Honey.



Reduce Cognitive Load

Spatial Contiguity



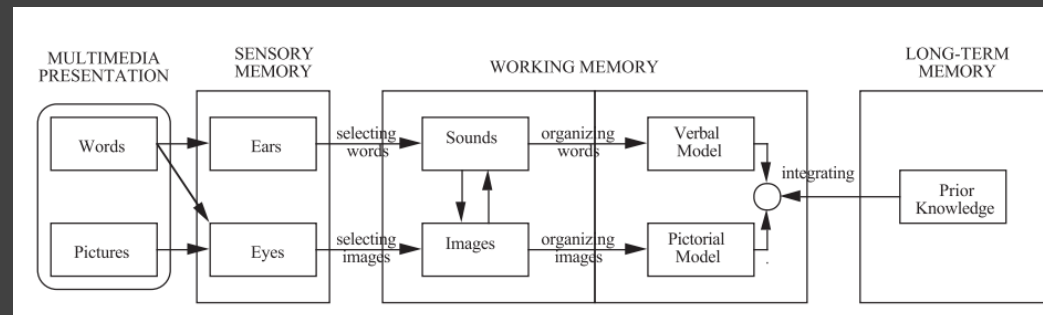
Reduce Cognitive Load

Temporal Contiguity

Sounds and Image Same Time

This

Not This



Recommended GeoEd Video Design Solutions

Clear Goals -> Decide scope of our content, and primary usage environment.

Targeted Narration-> Be clear and accurate in a conversational style. Avoid using terms that the audience may not know (or explain them).

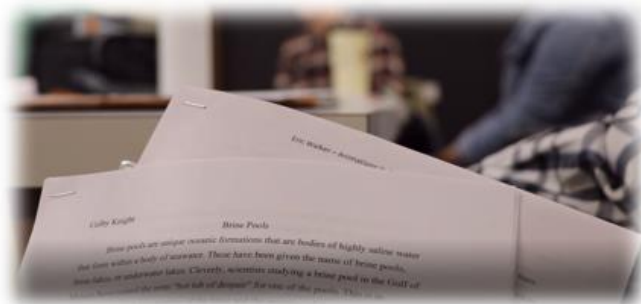
Correct Visualizations-> make sure the scientific correctness. Revise peer-reviewed materials with supervising by geoscience experts. (also more efficient in the production process)

Video Production Overview: Hardware & Software



**Workflow
Equipment
Software**

General Work Flow (3 Steps)



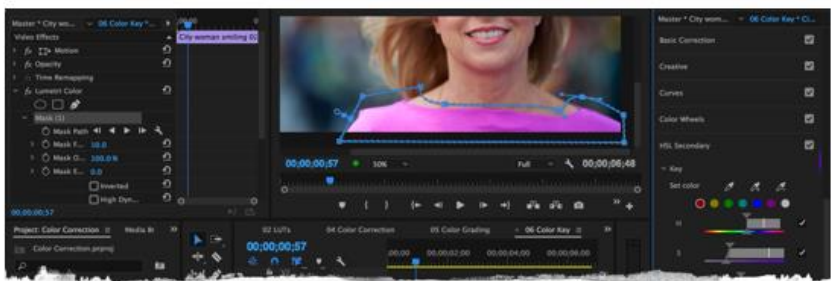
VISUAL STORY THINKING
(Writing + Visualizing)



PREPARE MATERIALS
(Collect, Revise, and Generate)



VIDEO EDITING
(Production)



Technology: Device



Canon

EOS 80D
EOS 80D (W)

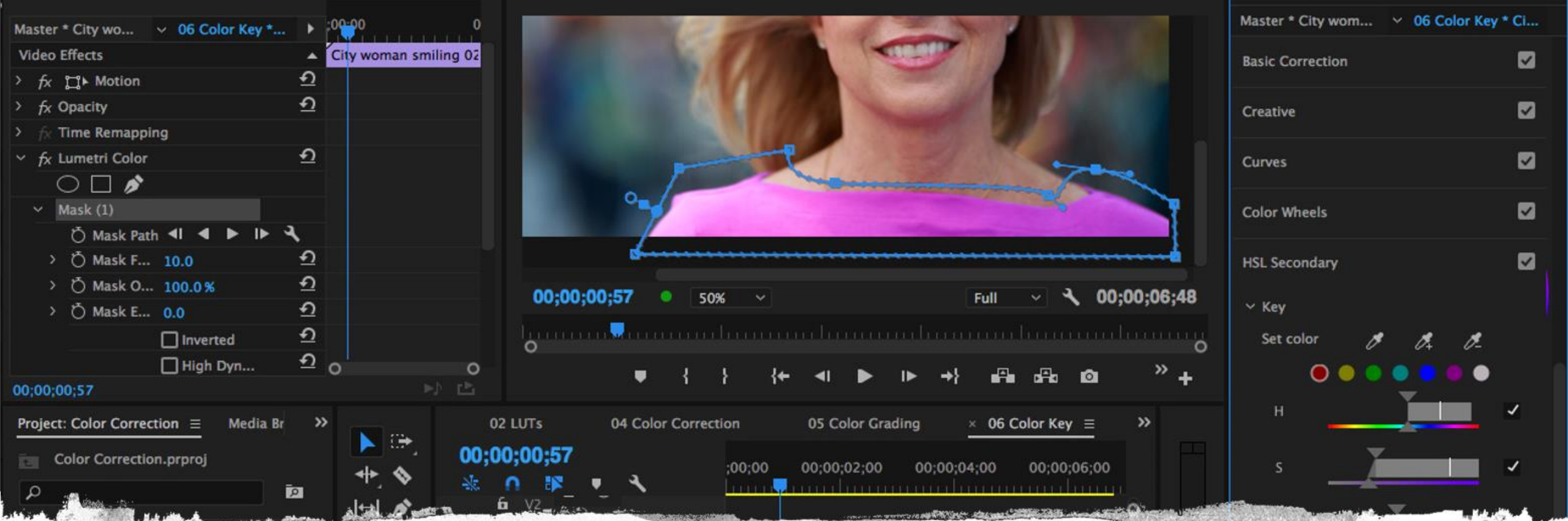


Instruction Manual

Instruction manuals (PDF files) and software can be downloaded from the Canon website (p.4, 513).

www.canon.com/icpd

ENGLISH

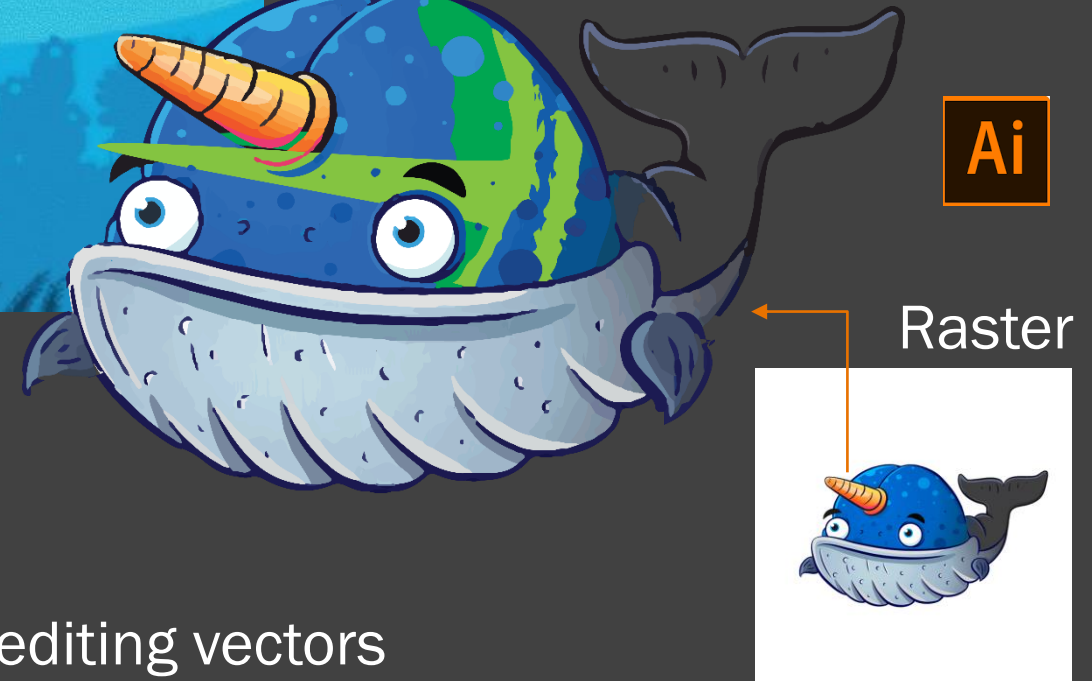


Technology: Adobe Creative Suite



Combination of Adobe is powerful!

Raster is pixels-based,
vector is math function-based



AE has very powerful pool of visual effects and editing vectors

Questions?



Contact information

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