Arming Students Against Misinformation:

Asynchronous Instruction to Motivate Community College Students to Practice Information Literacy Skills

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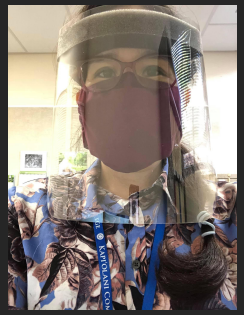
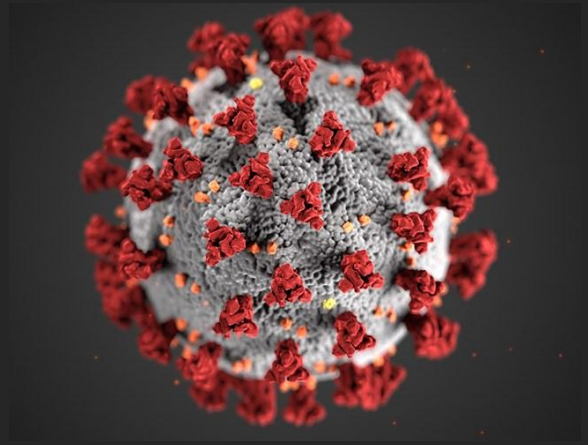
University of Hawai‘i at Mānoa
Learning Design & Technology
April 14, 2022



Infodemic



Misinformation

Information Literacy!

Problem & Target Audience

Students at Kapiʻolani Community College have difficulty searching for, locating, and evaluating information resources to complete research assignments.

There are further implications of the importance to develop Information Literacy (IL) skills in order to inform decision-making in students' personal lives when navigating the massive amount of information and misinformation found online.

image: https://studyenglishhawaii.com/programs/rainbowpathways/

Target Audience

- Average Age 25*
- May or may not know anything about IL
- May not see the value of Information Literacy instruction
- Motivated to complete assignments to pass classes

*(University of Hawai'i, n.d.)

image: https://nlmtotem.wordpress.com/2015/09/02/native-voices-traveling-exhibition-stops-at-kapiolani-community-colleges-lama-library/

Needs Assessment:

- Typically Face to Face
- After the pandemic: Synchronously online
- No asynchronous IL instruction
- Requested by Director of Radiologic Technology Program
- Support our Distance Education Students

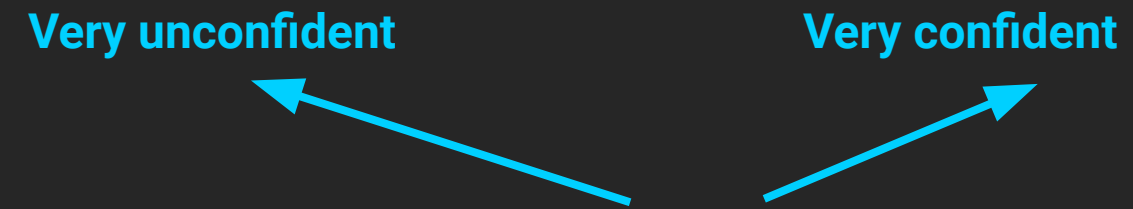
https://etcjournal.com/2015/06/12/whither-the-college-library/

Why do KCC Students have a hard time finding information resources and evaluating them?

- Students entering college seem to lack information literacy skills expected of college faculty (Saunders et al., 2017)
- Younger people struggle to analyze digital information despite being able to access and use online tools (McGrew, 2020).
- Educators perceive students are finding research resources online: Google, YouTube, social media, and Wikipedia; while books, eBooks, databases and librarians are used the least (Purcell et al., 2012).

Instructional Goal

Upon completion of this asynchronous instruction, students will be motivated and feel confident to practice evaluation of information resources, analyzing the creator's authority, and utilizing search strategies.



ON A SCALE OF 1 - 5
HOW CONFIDENT ARE YOU IN YOUR ABILITY TO DETECT MISINFORMATION?

DESIGN:
WHAT DID YOU DESIGN AND HOW DID YOU DESIGN IT?

An Introduction to Information Literacy

Welcome to Module 01:

Authority is Constructed and Contextual

Welcome to Module 01, where we will be learning about the *source*, or **authority** behind various information resources; what makes someone an authority; and that the **context** in which research is being conducted matters and affects what sources can be considered authoritative.

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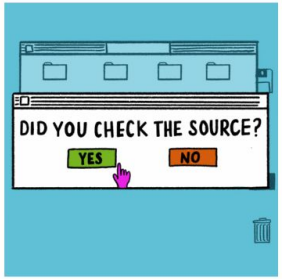

via GIPHY

Continue to the Module 01 video, "Authority is Constructed and Contextual"

Welcome to Module 02:

ALL The CRAAP! (and More)

In Module 02, we will learn how to evaluate the evidence in **online** resources utilizing the **CRAAP Test**, plus learn the importance of **analyzing the evidence** in claims made through various websites and articles. Aditional tools and tips will be shared to help arm you against misinformation, and provide guidance on **lateral reading** and **evaluating information found online**.

via GIPHY

Continue to watch a video about applying The CRAAP Test

Welcome to Module 03:

Searching as Strategic Exploration

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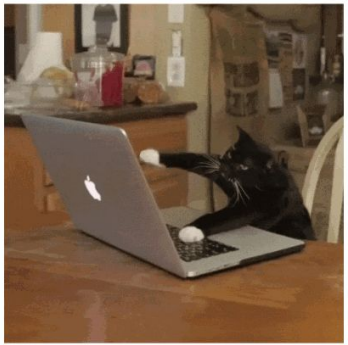


via GIPHY

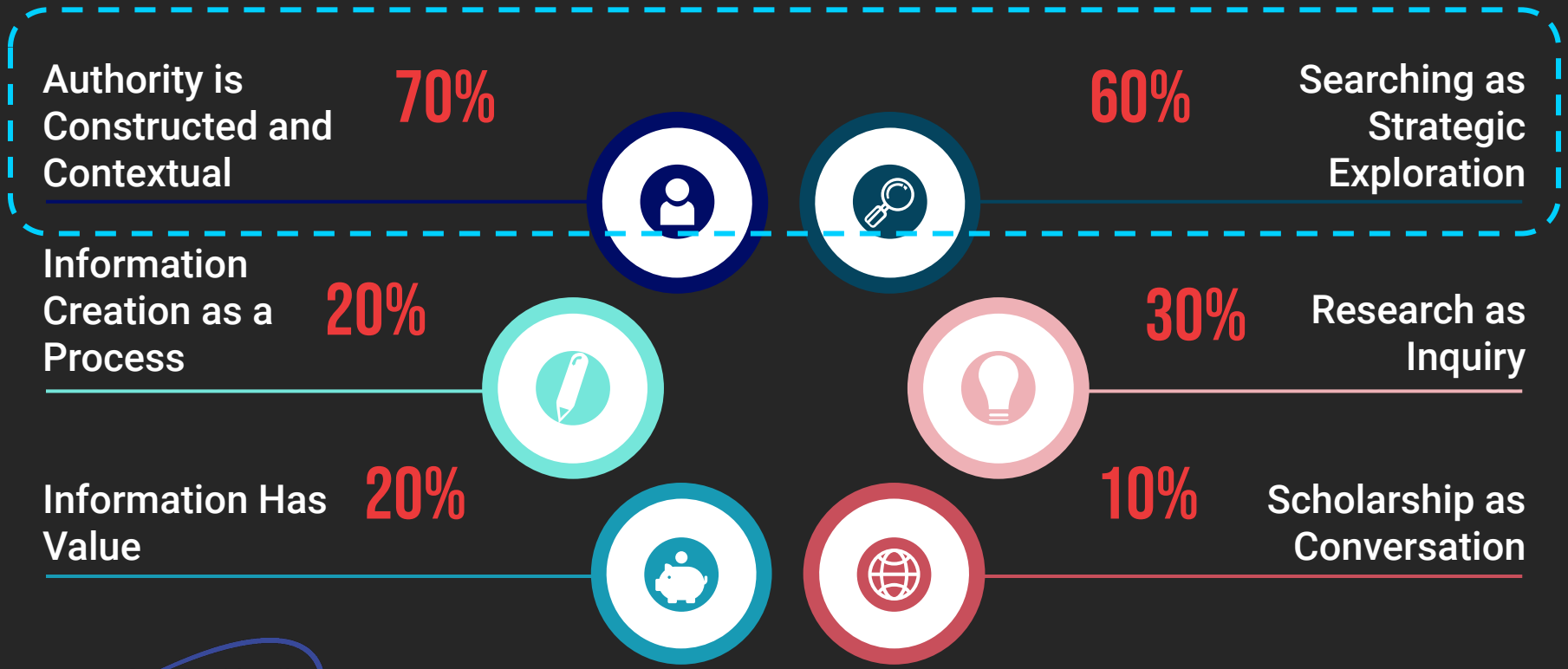
Continue to the Module 03 Presentation Part I

Framework for Information Literacy for Higher Education

ACRL Association of College & Research Libraries
Advancing learning Transforming scholarship

(American Library Association, 2015)

Areas Needing Improvement Selected by Faculty (*n* = 10)



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Framework for Information Literacy for Higher Education (ALA, 2015)

Domains of Learning

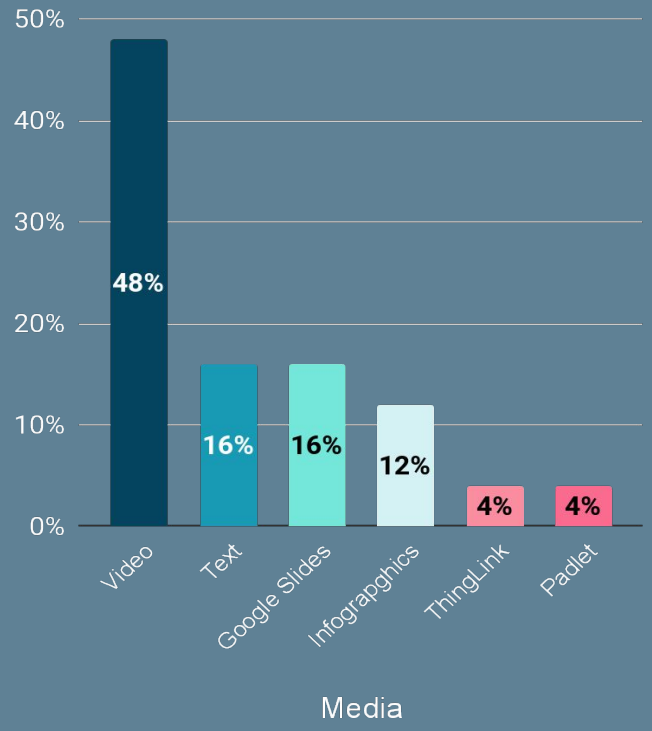
- Cognitive
  - Pre-test
  - Post-test
- Affective
  - Retrospective-survey

Instructional Strategies

- Keller's ARCS Model of Motivation (2010)
  - Attention, Relevance, Confidence, Satisfaction
- Mayer's Cognitive Theory of Multimedia Learning (Mayer, 2014)

Design: Use of Media & Multimedia Throughout the eLearning

Media Types (n = 6) & Elements Used in the eLearning Course (n = 25)



Videos: 12

Text explanation: 4

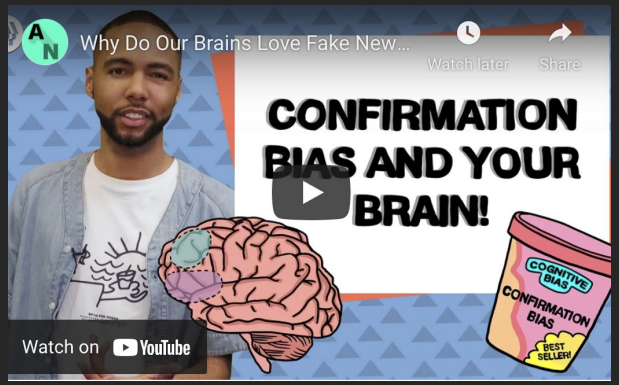
Google Slides: 4

Infographics: 3

ThingLink: 1

Padlet: 1

ARCS Model of Motivation: Attention & Relevance



- High Quality audio
- Good production
- Duration 5 mins or less

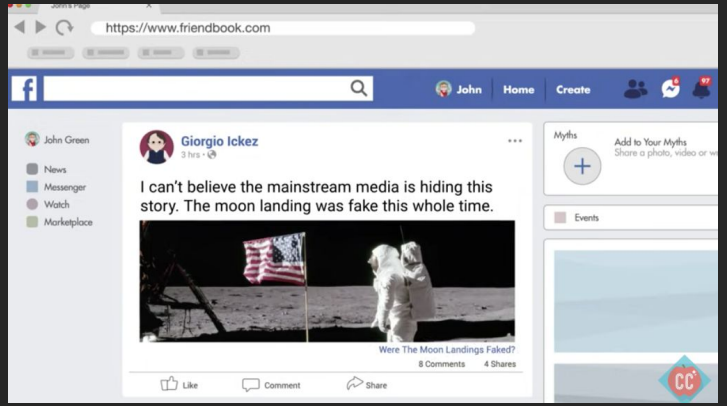
Cognitive Theory of Multimedia Design (Mayer)

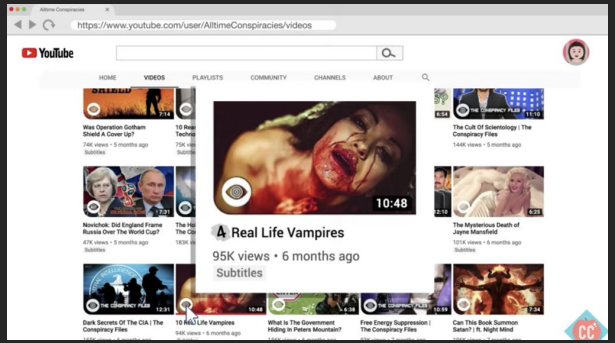
"People learn better from words and pictures than from words alone" (2014, p.43)

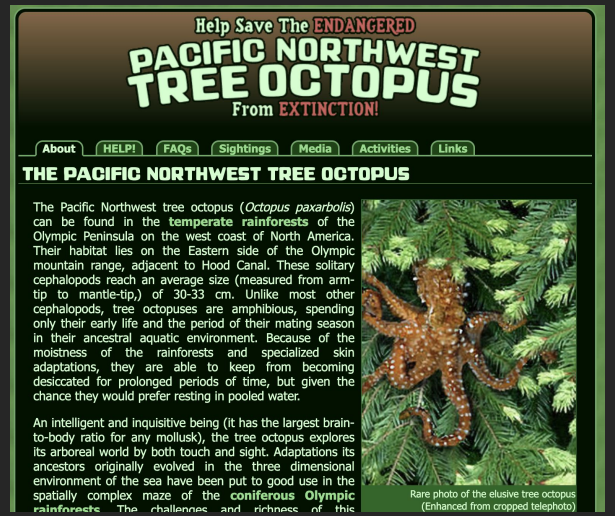
Videos & Google Slide presentations with audio:

- Redundancy (graphics & narration)
- Temporal contiguity (narration and graphics simultaneously)

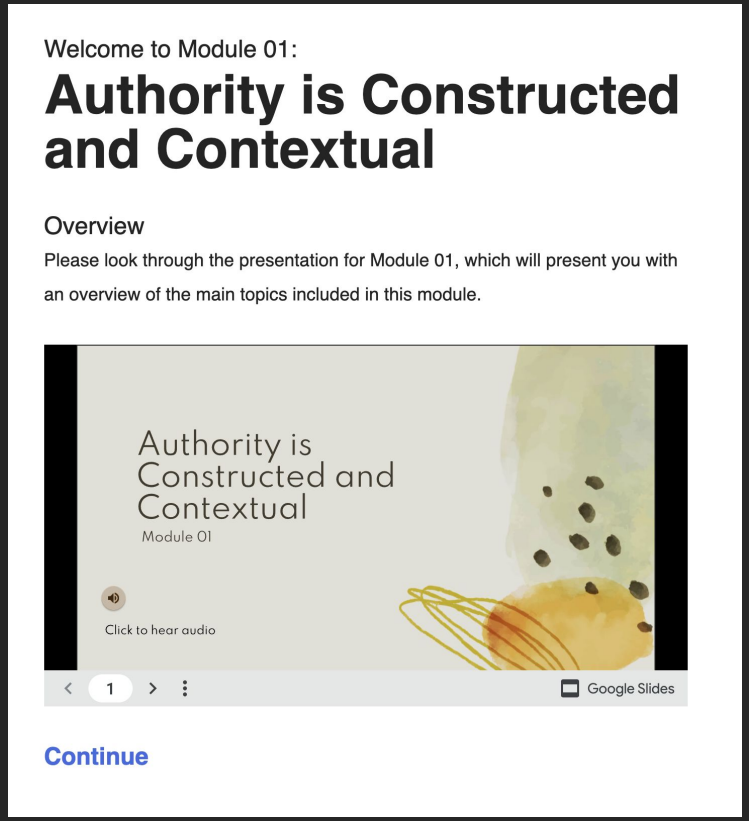
Examples & Non-Examples, Relevance







Design: Emphasis



Very minimalist design on all pages:

- Content is the star of the show
- No navigation menu
- No distractions
- Chunking of information
- Reduce cognitive load

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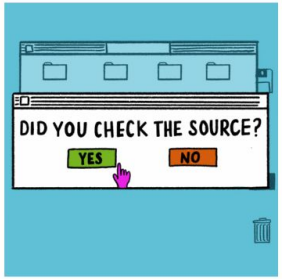

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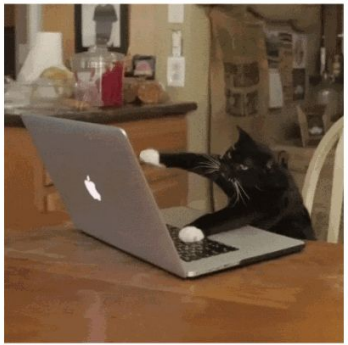

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Continue to the Module 03 Presentation Part I

Pre-Training and Signaling

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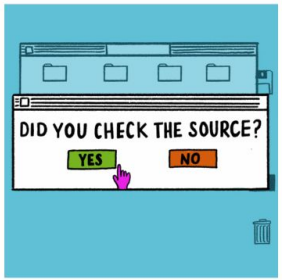

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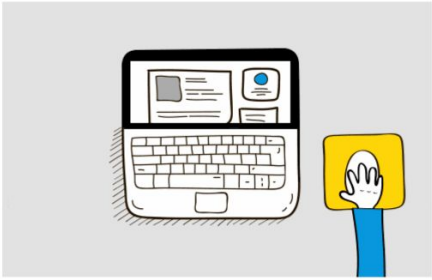

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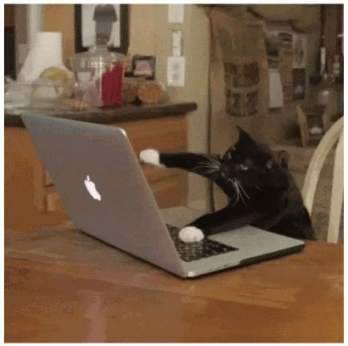
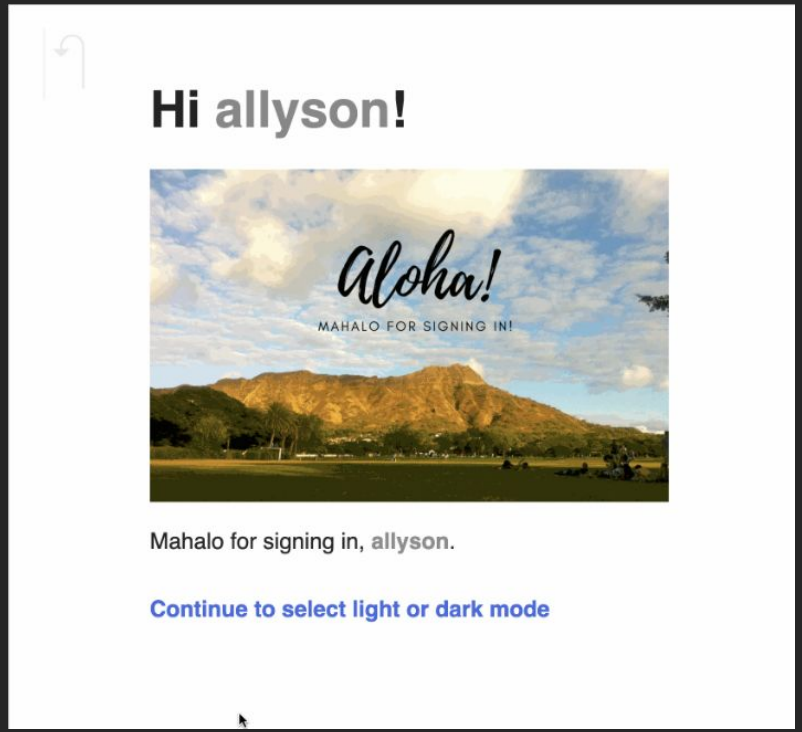


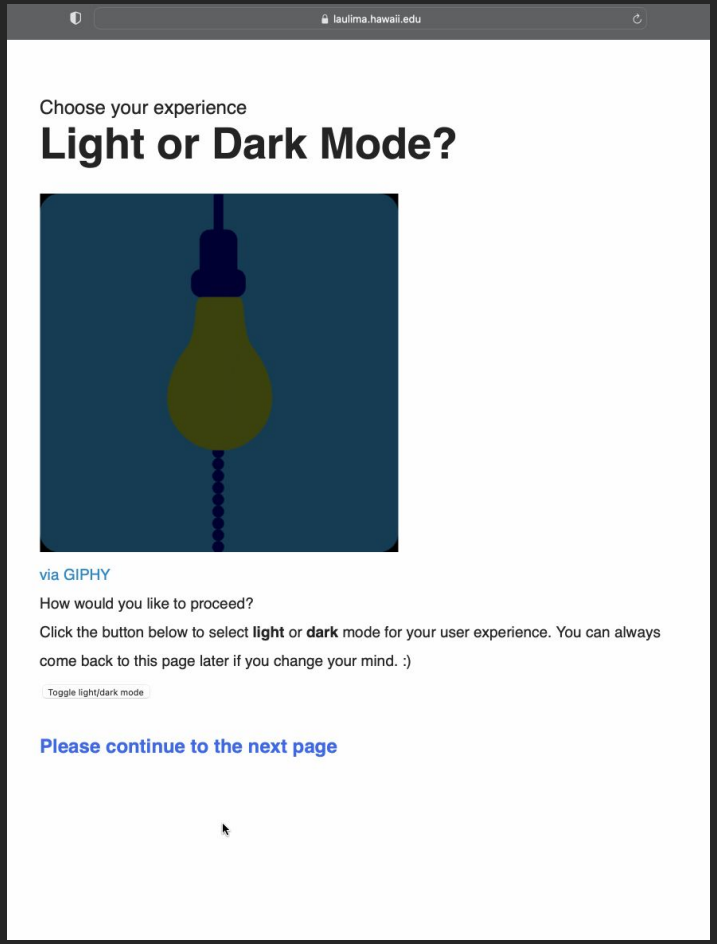
via GIPHY

Continue to the Module 03 Presentation Part I

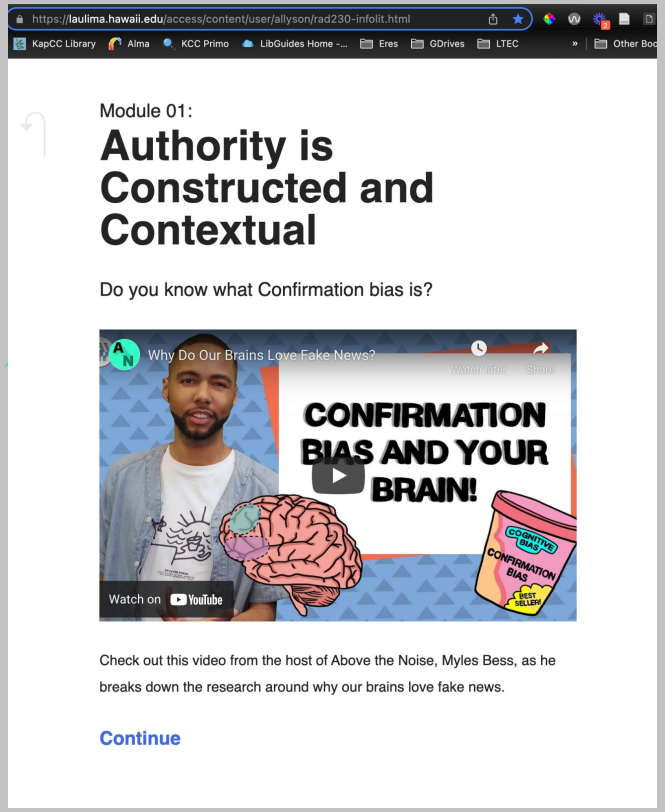
Design:
Personalization Principle

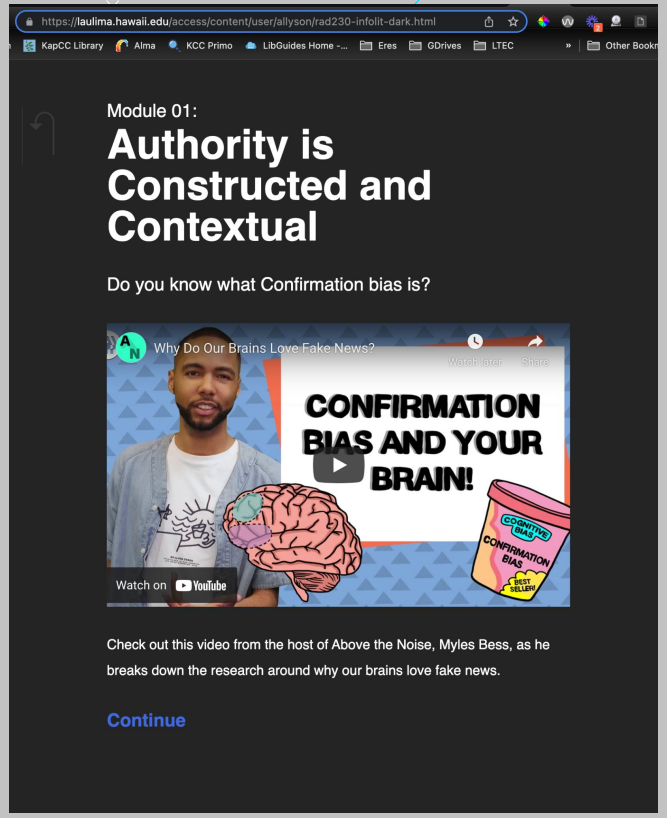
Customization & Personalization

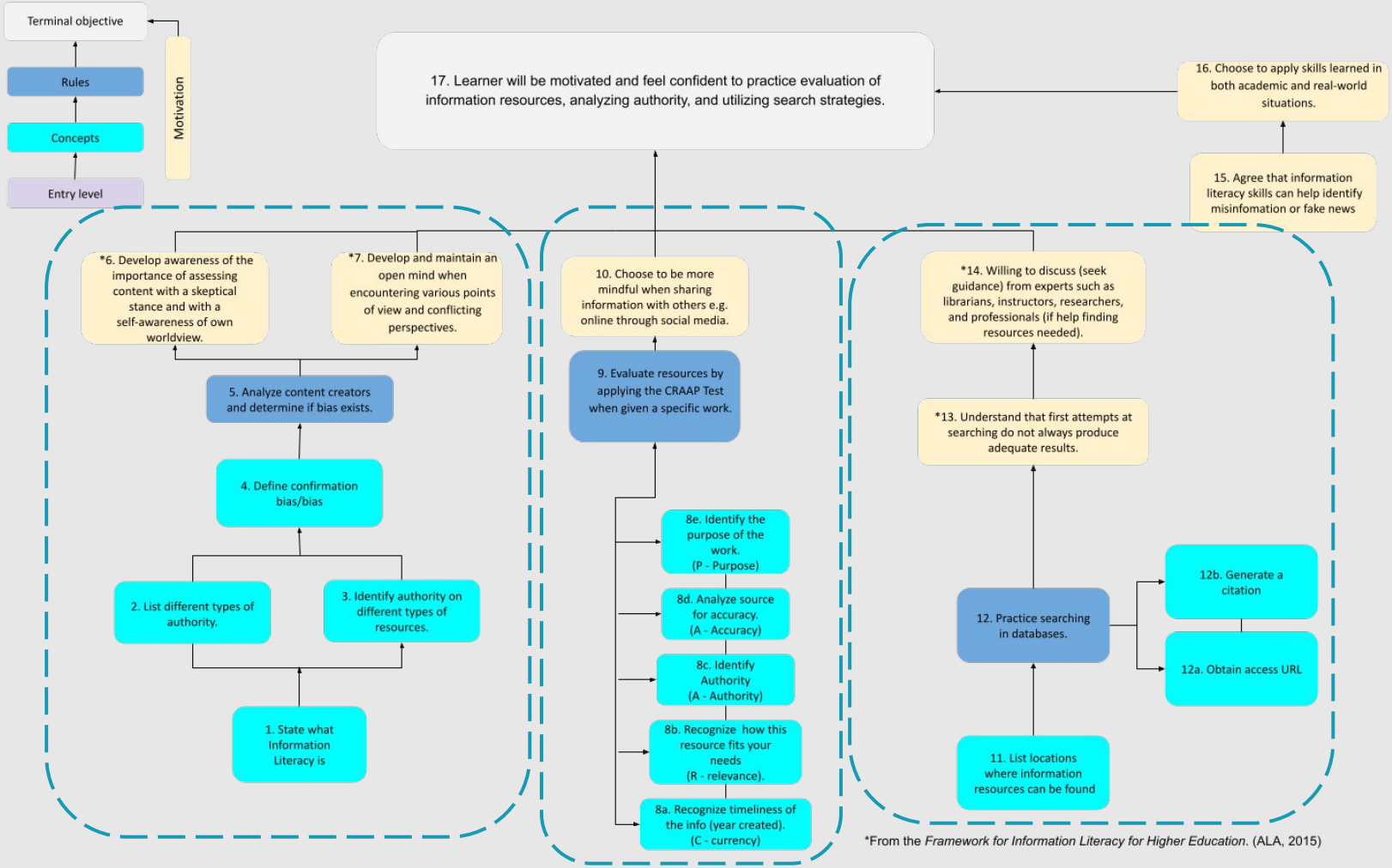




Dark or Light mode option

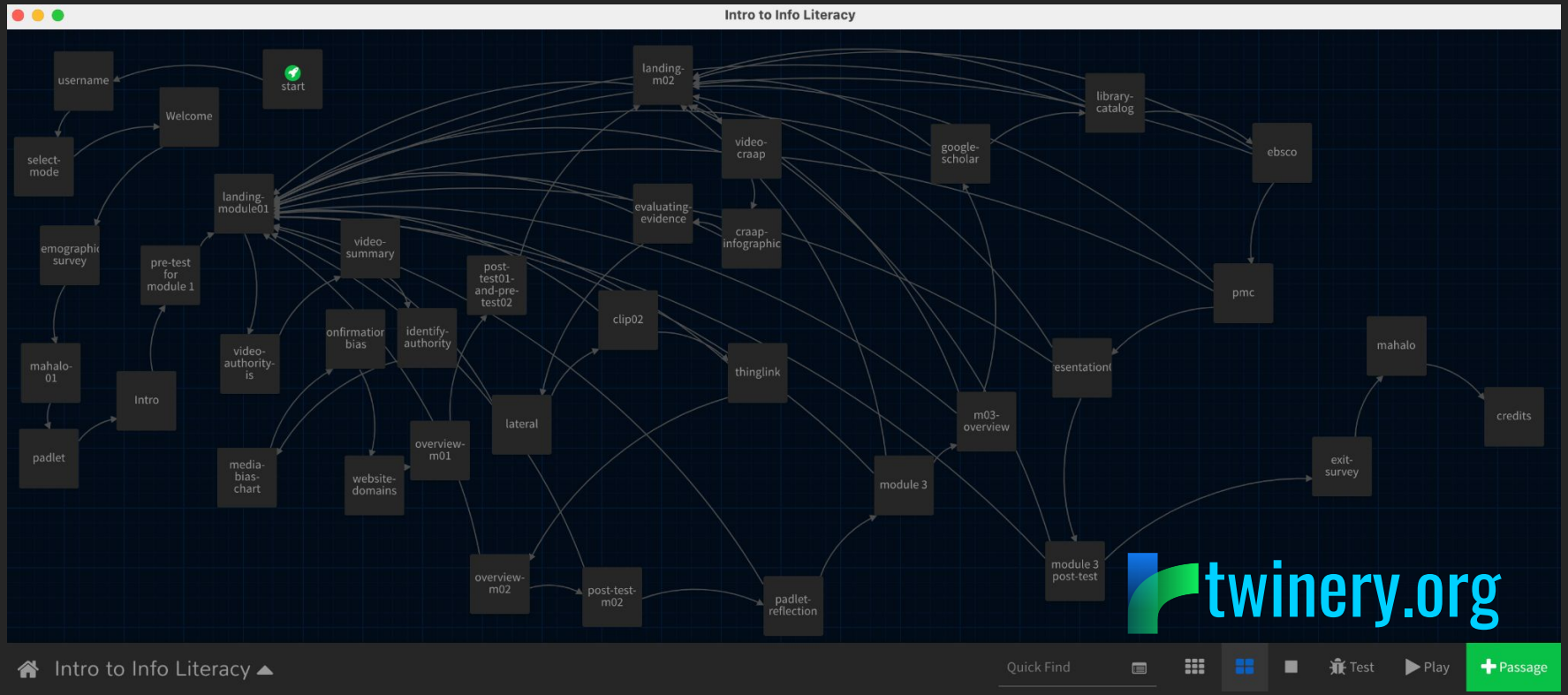






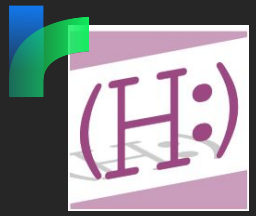
*From the *Framework for Information Literacy for Higher Education*. (ALA, 2015)

twine IS "AN OPEN-SOURCE TOOL FOR TELLING INTERACTIVE, NONLINEAR STORIES"



Utilized in an *extremely* linear way to allow **scaffolding**

Technology



Stylesheet

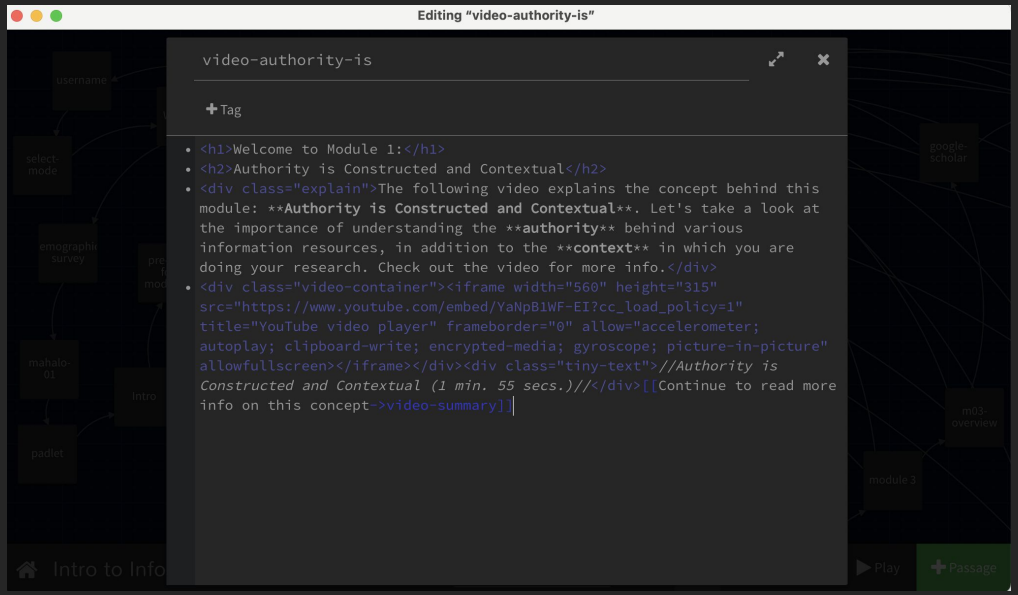
Any CSS entered here will override the default appearance of your story.

```
body {
  background-color: white;
    margin: 60px auto;
    width: 80%;
}
/* this is the test code */
body {
  padding: 25px;
  background-color: white;
  color: black;
  font-size: 25px;
}

.dark-mode {
  background-color: #242424;
  color: white;
}
/* end of test code*/

.explain {
  color:#242424;
  font-family:'Helvetica', 'Arial', 'Sans-Serif';
  font-size: 19px;
}

tw-story {
```



Twine:

- HTML5, CSS, Harlowe 2.1.0 story format, Javascript to code the website and embed multimedia / learning objects

Media & Multimedia Types + Tools & Technologies Used

*Video

*Infographics

*Google Slides

*Padlet

*ThingLink

**Explanatory Text

**Google Forms (for assessment)

**Media (just Text) | *Multimedia*

Module 01: Authority is Constructed & Contextual

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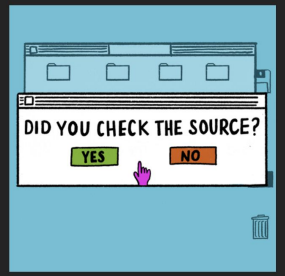

via GIPHY

Continue to the Module 01 video, "Authority is Constructed and Contextual"

Content Covered:

- What is Information Literacy?
- Authority is determined by information need and the context in which information will be used in
- Identifying Authority + Types of Authority
- Confirmation Bias
- Approaching information with skepticism and open-mindedness

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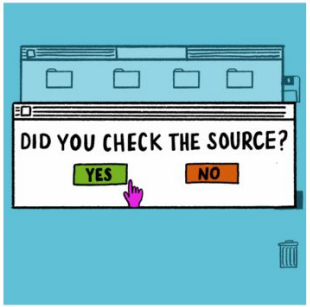

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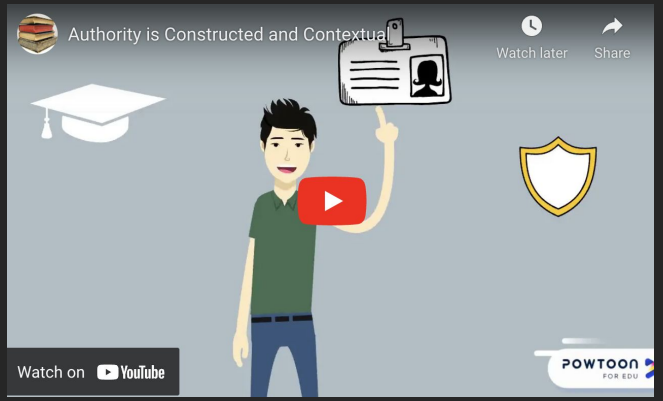


Module 01: Review

Authority is Constructed and Contextual Video

You just watched a video that explains the concept: **Authority is Constructed and Contextual**. Jared was confused because he sees his pastor as an authority figure, but in the context of his college class assignment, his instructor wanted him to utilize sources considered authoritative in academia. There are different types of authority that exist, but the **context** in which you are performing your research, also matters. When doing personal research, you probably wouldn't need a scholarly, peer-reviewed article to find the answer to all your questions, but it is something your instructor may require for class assignments.

Continue to learn about identifying the authority on a resource

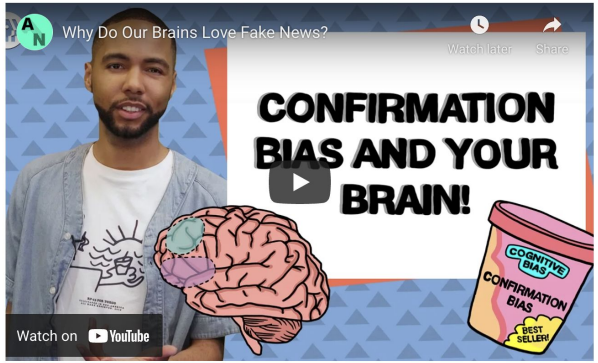
Explanatory Text & Videos

Module 01: Authority is Constructed and Contextual

Module 01: Authority is Constructed and Contextual

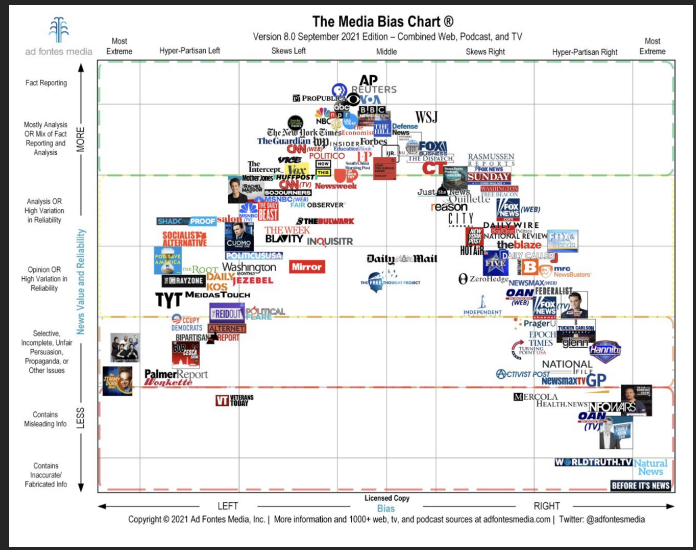
Confirmation Bias

Do you know what **Confirmation bias** is? Check out this video from the host of Above the Noise, Myles Bess, as he breaks down the research around why our brains love fake news.



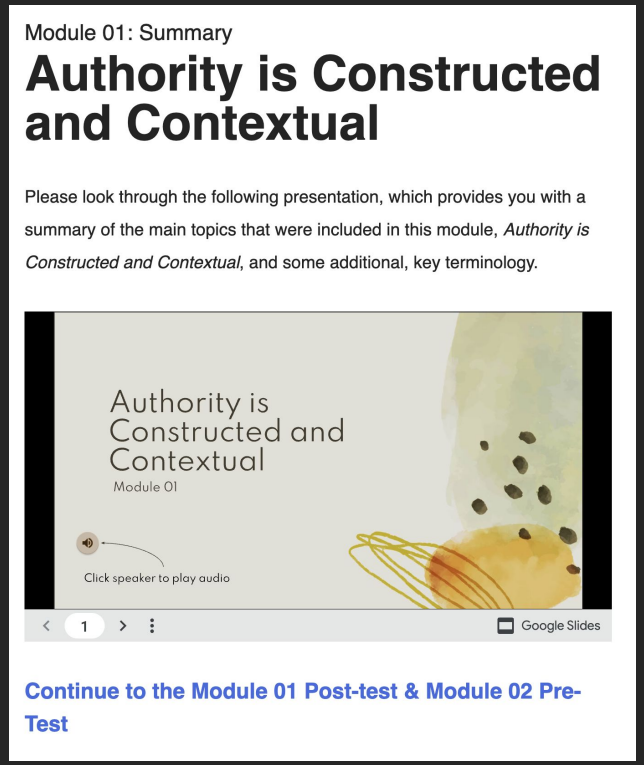
Why Do Our Brains Love Fake News? (5 min. 20 secs.)

Continue to learn about website domains and authority



Videos & Infographics

Module 01: Authority is Constructed and Contextual



- Ends with Summative Google Slides Presentation
- Help prepare them for the post-test

Module 02: ALL The CRAAP! (and More):
Addresses evaluating resources found online

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via GIPHY

Continue to watch a video about applying The CRAAP Test

Content Covered

- CRAAP Test (2010)
- Lateral Reading
- Examining the Evidence
- Many real-world examples

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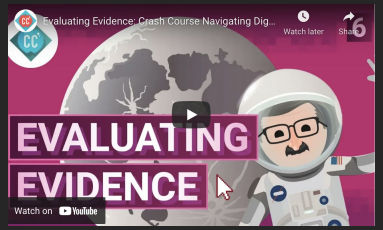
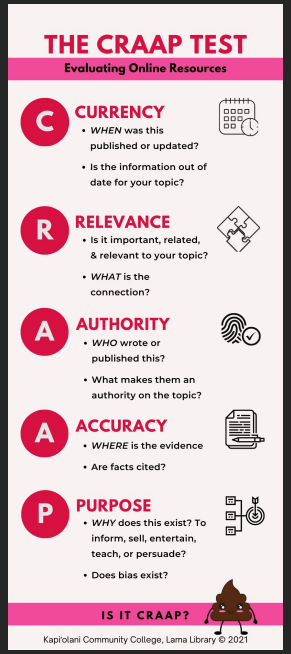
Continue to watch a video about applying The CRAAP Test

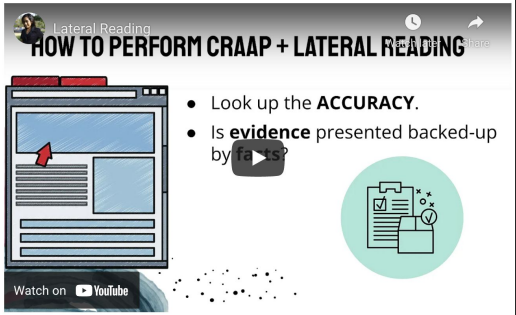




Module 02: ALL the CRAAP! (and More)

Lateral Reading

Lateral reading is a recommended technique to use ***in addition to the CRAAP Test***. Lateral reading encourages you to **open new tabs**, and start searching for information *outside* of the current site you're evaluating, in order to analyze how credible the original site is. Watch the video below to learn about using lateral reading to evaluate resources.



Lateral Reading (3 min. 05 secs.)

Continue to learn more about analyzing the evidence

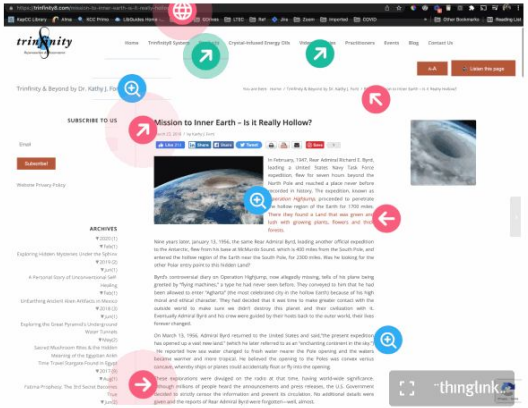
Videos, Infographics, & Evaluative Strategies, CRAAP Test, + Use of CRAAP with Lateral Reading

Module 02: ALL The CRAAP! (and More)

Module 02: ALL the CRAAP! (and More)

Breaking Down a Resource

The image below contains hot spots you can click or mouse-over to interact with analyzing an example resource found online. To view bigger, click the fullscreen icon on the bottom-right of the image next to the word "Thinglink."



This content was based off a resource found on the Indiana University East Fake News LibGuide

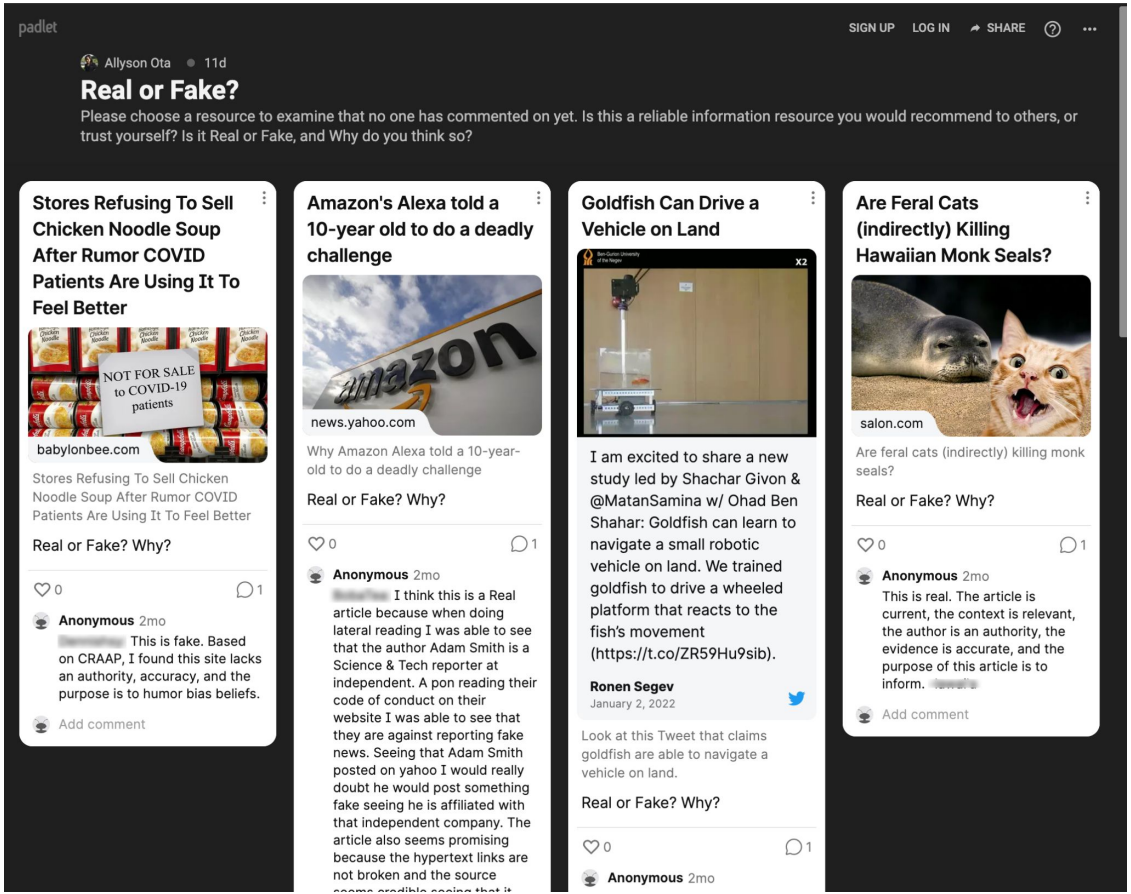
Continue to Module 02 Summary

ThingLink:
Article Exploration

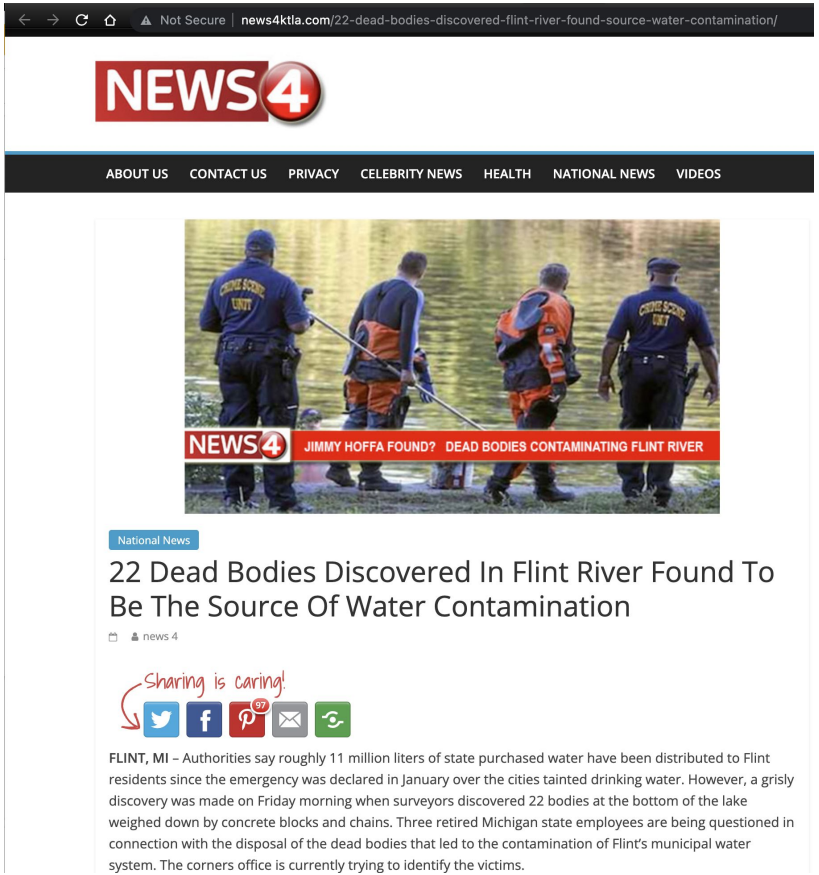
EMBEDDED TEST: Module 02: ALL The CRAAP! (and More)

Padlet

- Interaction
- Analyze resources



ASSESSMENT: Module 02: ALL The CRAAP! (and More)



3. Please state your opinion on whether or not this resource would be a credible news item to cite in a research assignment on Flint Michigan's water crisis.

Yes or No?

Please explain your answer.

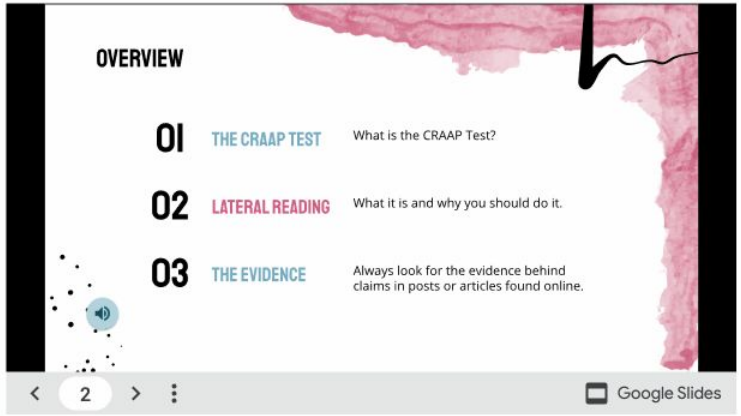
http://news4ktla.com/22-dead-bodies-discovered-flint-river-found-source-water-contamination/ *

Module 02: ALL The CRAAP! (and More)

Module 02: ALL the CRAAP! (and More)

Summary

Please check out this overview of Module 02 before continuing on to the Post-test for Module 02, and the Pre-test for Module 03.



Continue to post-test 02 + pre-test 03

Module 03: Searching as Strategic Exploration

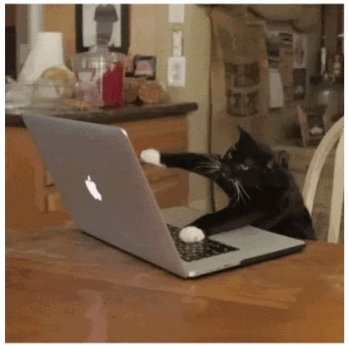
Welcome to Module 03:

Searching as Strategic Exploration

In Module 03, we will learn about where you can **locate quality resources** for your research assignments, observe video tutorials showing you **how to search** in the following locations / databases:

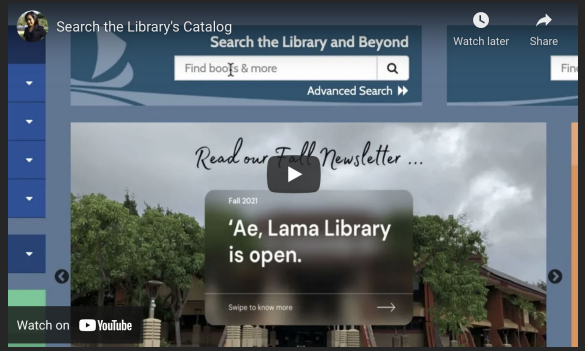
1. **Google Scholar**
2. **Library's Catalog**
3. **EBSCO Health Databases**
4. **PubMed Central**

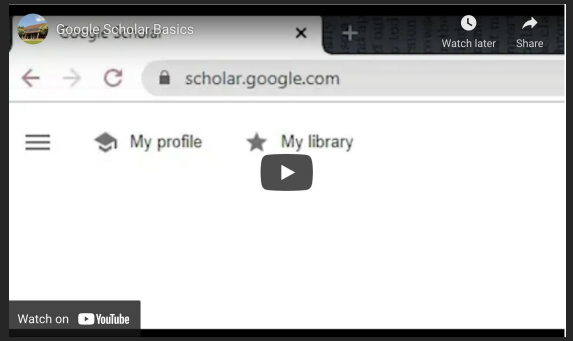
Learn about the **search process** itself, and realize ***it's totally fine to ask for help!***

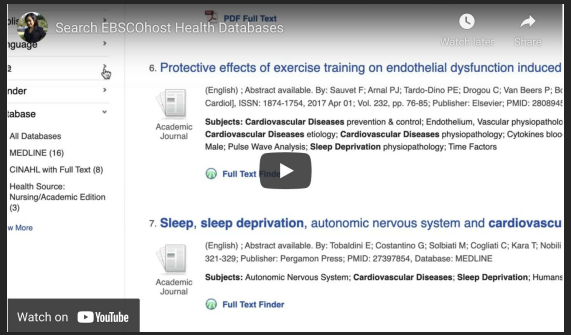


via GIPHY

Continue to the Module 03 Presentation Part I

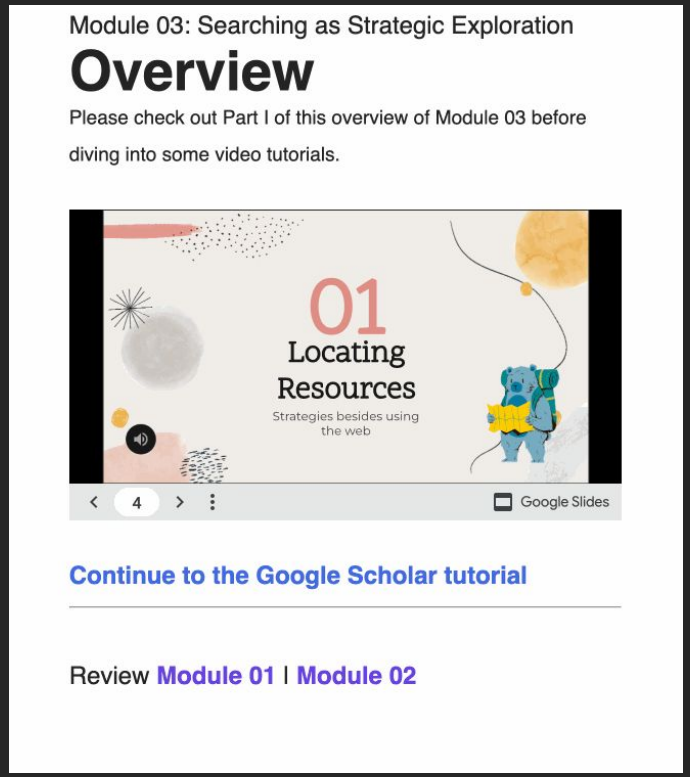


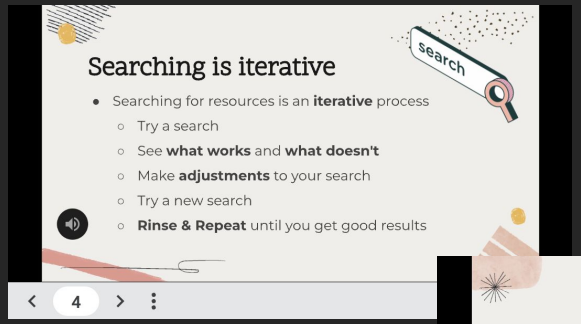


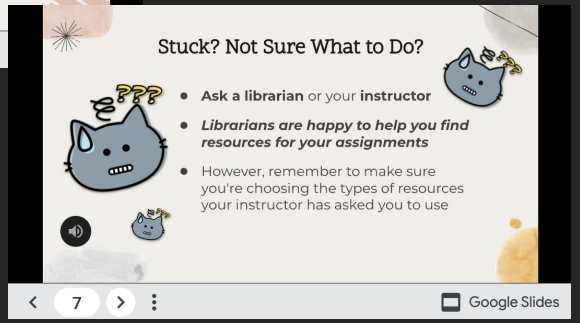


4 Searching Tutorials:
Library's catalog, PubMed Central, Google Scholar, & EBSCOhost Health

Module 03: Searching as Strategic Exploration







"Before this module I didn't know how to use databases so module 3 was very helpful to me."

- student participant

2 Google Slides presentations at the beginning and end of the module

EVALUATION
USABILITY STUDY + LEARNING ASSESSMENT (LA)

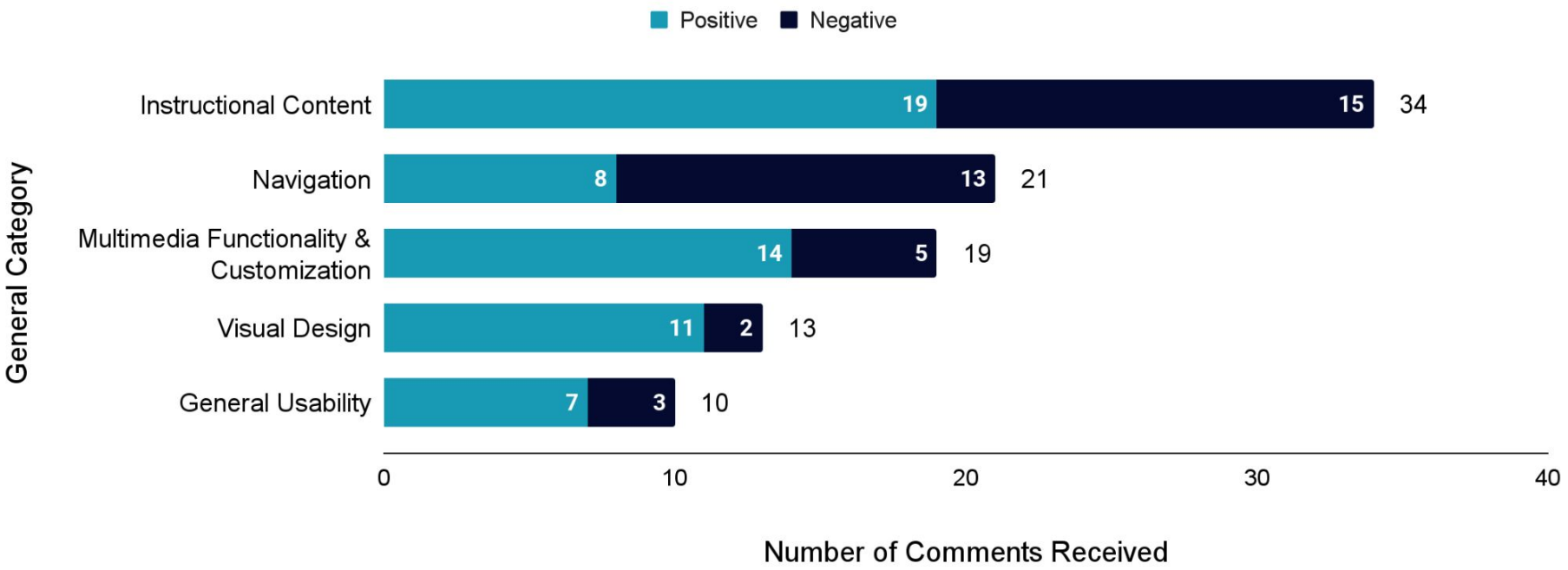
USABILITY STUDY: IS THE INSTRUCTION USABLE?

PARTICIPANTS: USABILITY STUDY

- Participants (*n* = 3)
- Librarian, Faculty member at KCC, Usability + Content, Subject Matter Expertise (SME): Information Literacy
- Instructor, Faculty at KCC, SME: LTEC M.Ed. (Instructional Design)
- Student, undergraduate, UHM student majoring in Education

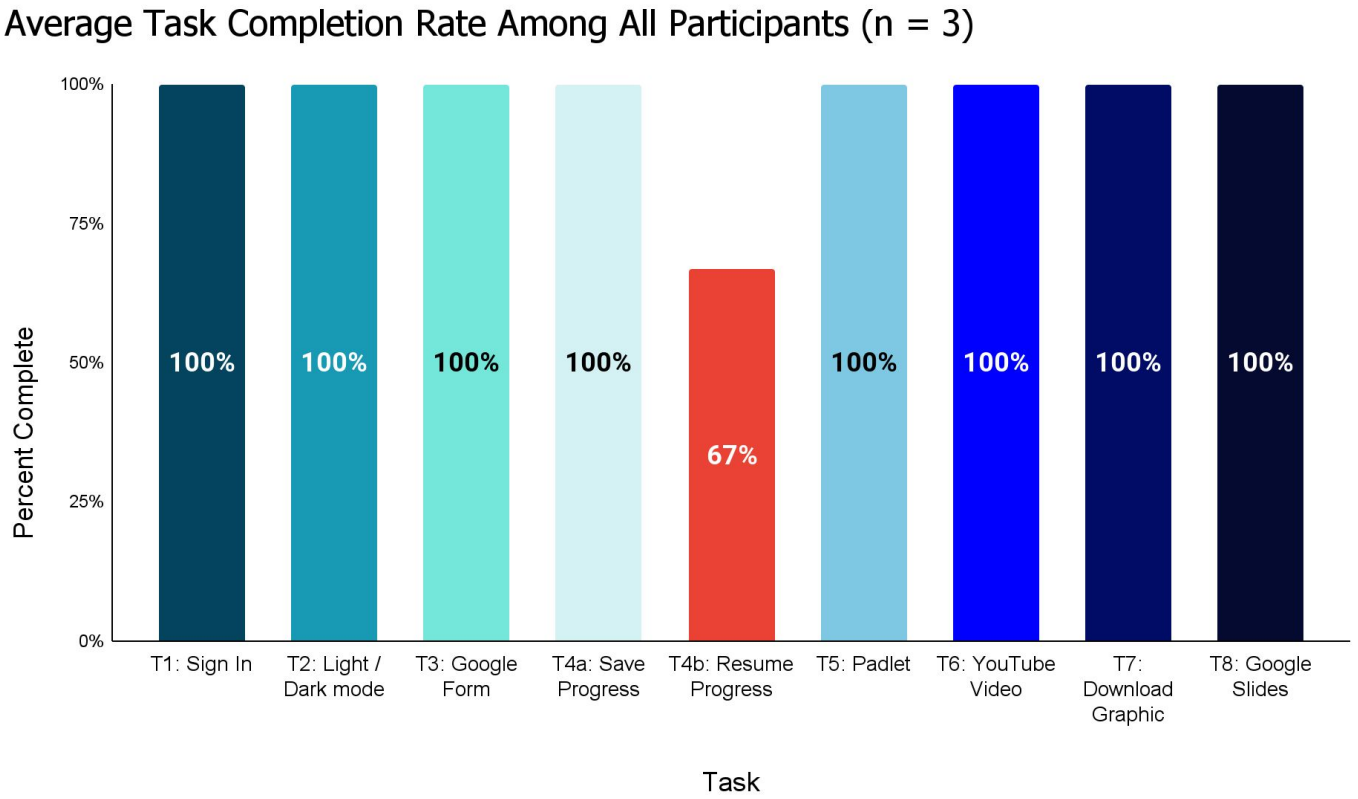
USABILITY STUDY RESULTS: FEEDBACK FROM PARTICIPANTS

Positive and Negative Feedback Received Across Usability Categories (n = 3)

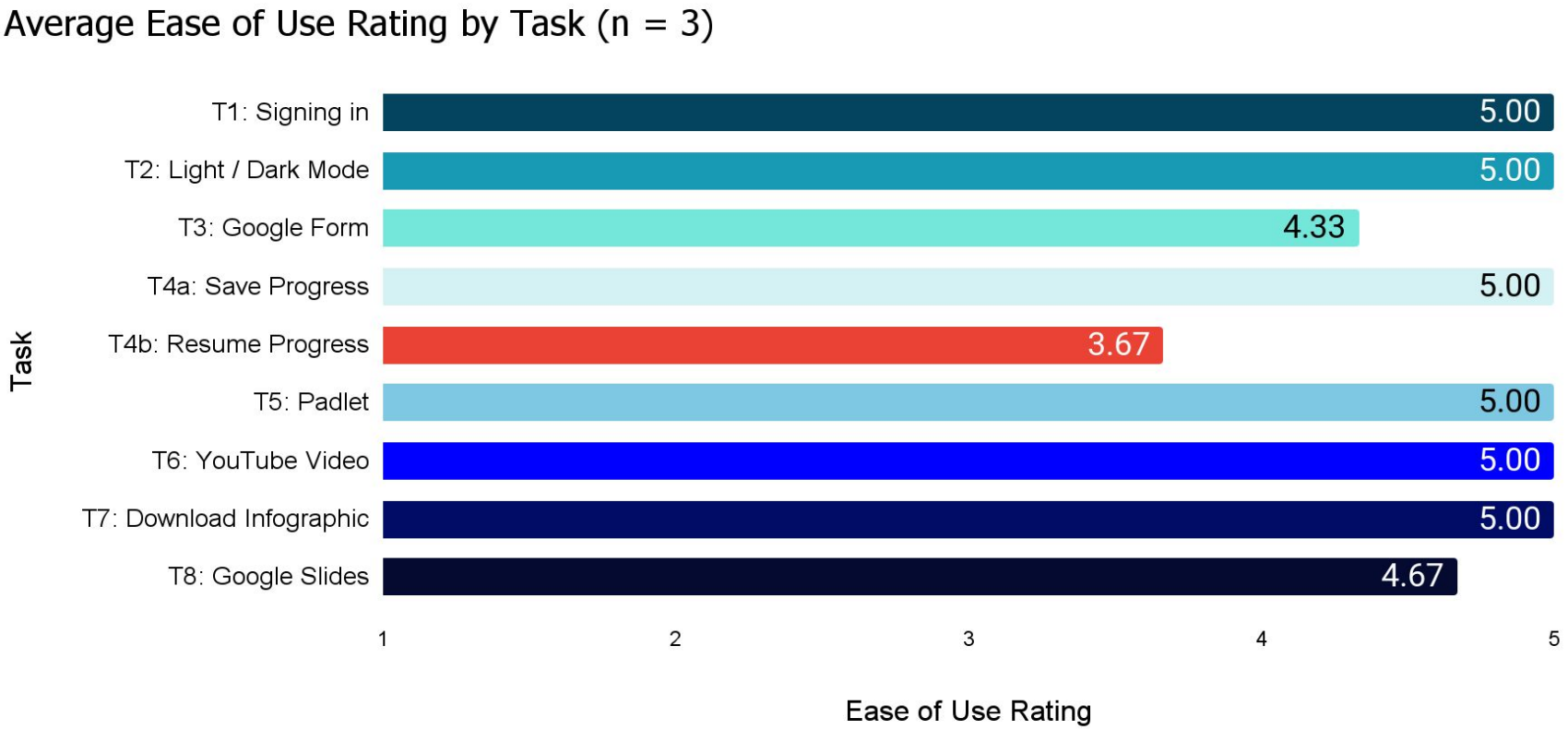


97 Total Comments Received

USABILITY STUDY RESULTS: TASK COMPLETION RATE



USABILITY STUDY RESULTS: EASE OF USE



1 = Very Difficult, 5 = Very Easy

USABILITY STUDY RESULTS: EASE OF USE (OVERALL)

Follow-up Survey:

"Rate the ease of use of the website"

5

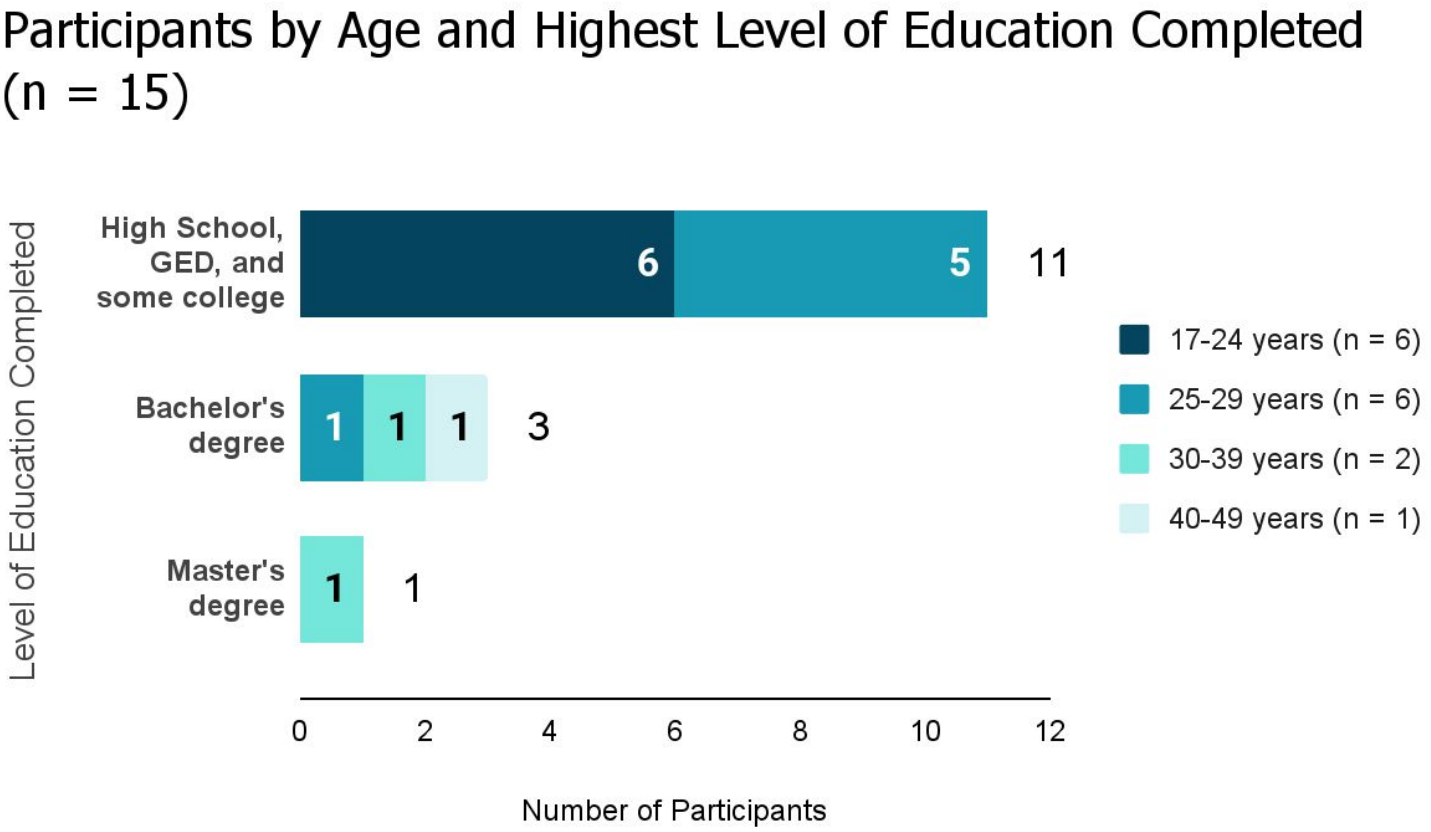
1 = Very Difficult, 5 = Very Easy

LEARNING ASSESSMENT:
IS THE INSTRUCTION EFFECTIVE?

PARTICIPANTS: LEARNING ASSESSMENT (LA)

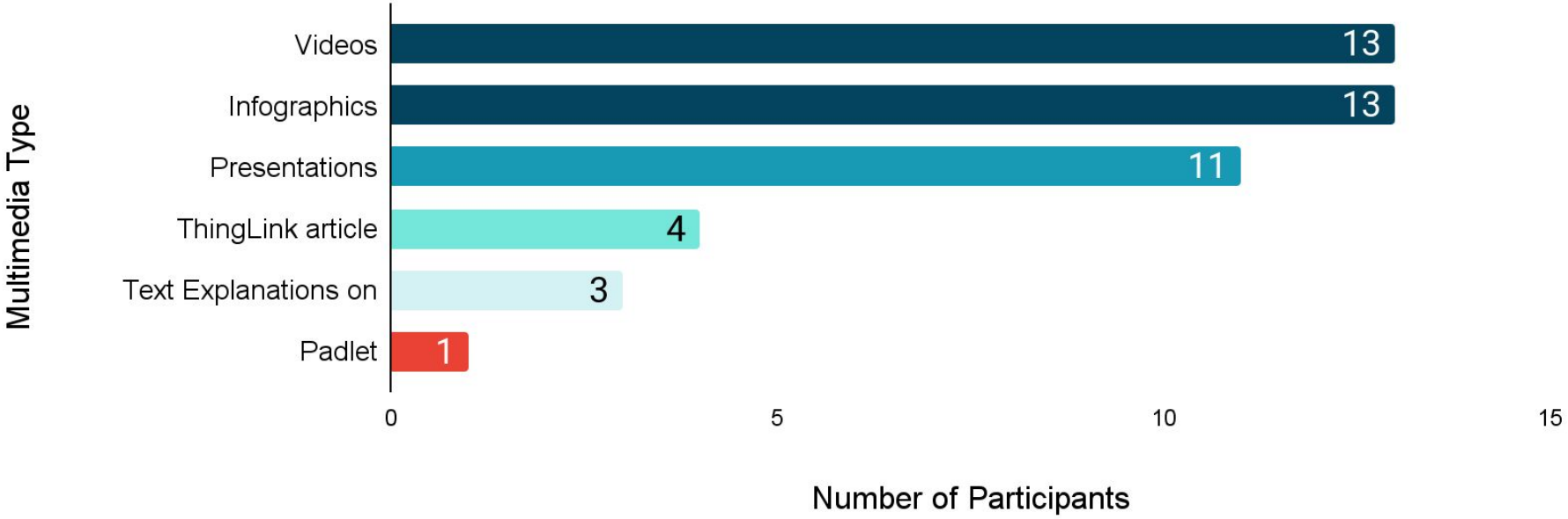
- RAD 230 students (*n* = 14)
- Student, undergraduate, UHM student majoring in Education (*n* = 1)
- Total participants (*n* = 15)
  - All from target audience

PARTICIPANTS: LEARNING ASSESSMENT (LA)



PARTICIPANTS: LEARNING ASSESSMENT (LA)

Participants' Preferred Multimedia / Media Types (n = 15)



WHAT DID YOU LIKE THE MOST ABOUT THE INSTRUCTION?

Eleven (73%) students mentioned video

"I feel **like the choice of videos** were good because of how **to the point** and **short** they were. **I didn't really get bored**."

"I liked that **videos and pictures** were implemented **vs having to just read a bunch of stuff**."

"**I liked the videos the most** because I am more of a **visual learner**. Watching videos are [sic] **helpful** and **make learning more fun**."

WHAT DID YOU LIKE THE MOST ABOUT THE INSTRUCTION?

Connection to coursework

"It's a **good reference/tool** for my **upcoming paper / assignments**."

Asynchronous instruction

"We could **go at our own pace** and **backtrack** to the information if necessary **to help ourselves answer questions**."

I have **taken this course before** at UH Manoa, so **doing this asynchronously was very** [sic] **much better** and was a **refresher** for me."

WHAT DID YOU LIKE THE LEAST ABOUT THE INSTRUCTION?

4 students (27%) said "n/a" or "nothing"

3 students (20%) mentioned length of the instruction

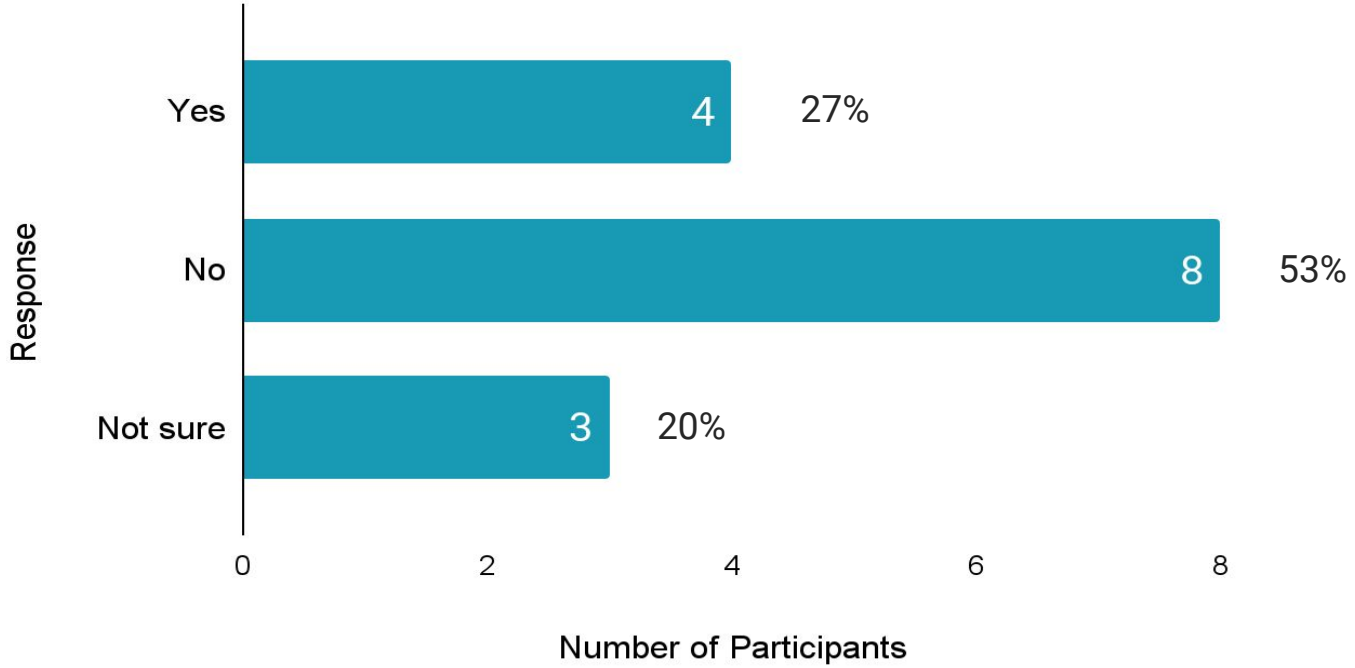
2 students (17%) mentioned Padlet

1 Student (7%) mentioned "*I did not like the long videos*"

1 participant (7%) felt it could have been longer with more info

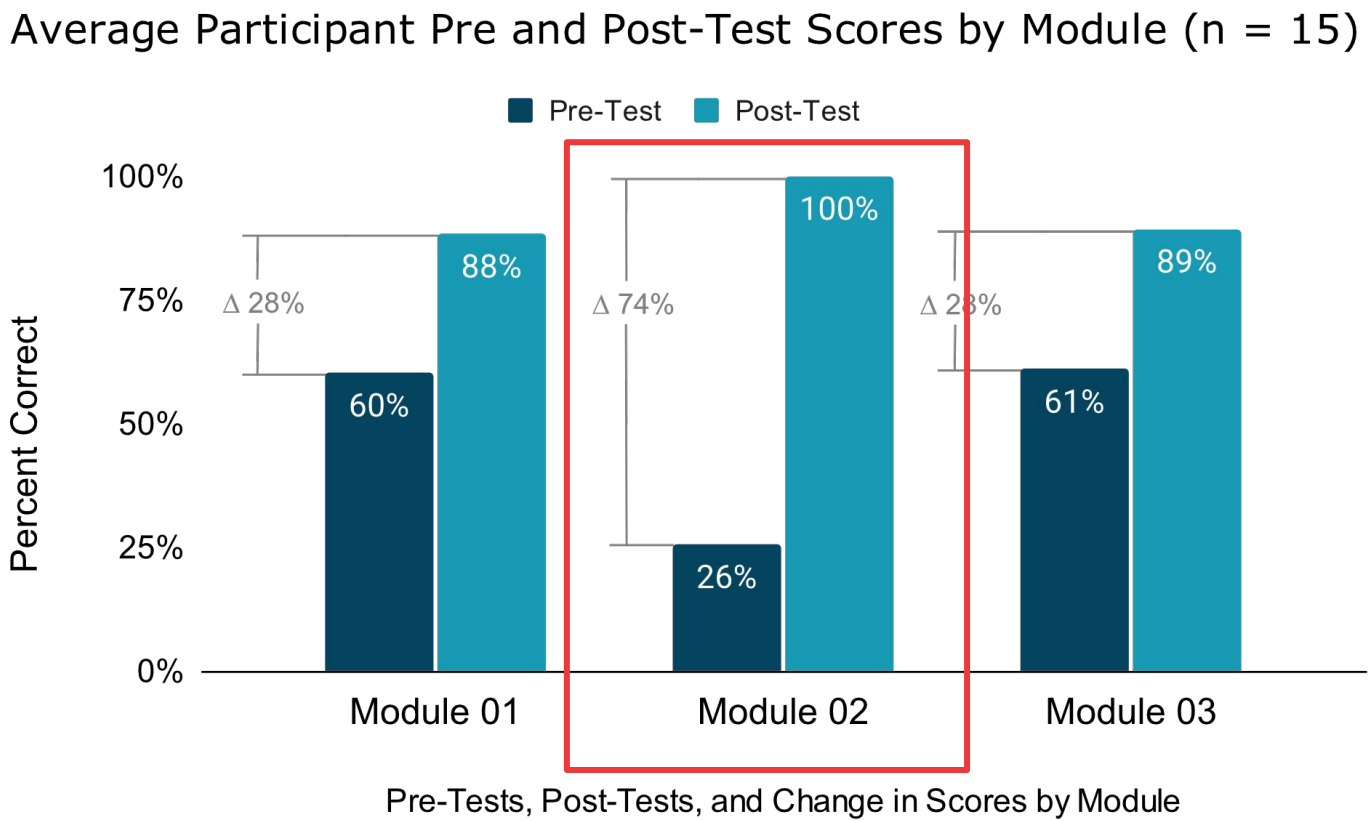
PARTICIPANTS: DEMOGRAPHICS

Have you ever attended a library orientation or library instructional session with any of your college classes at any of the UH system libraries? (*n* = 15)



COGNITIVE OBJECTIVES

LA AVERAGE SCORES BETWEEN PRE AND POST-TESTS



PARTICIPANTS: DEMOGRAPHICS

Do you think misinformation is a problem?

- *Yes*
- *No*
- *Not Sure*

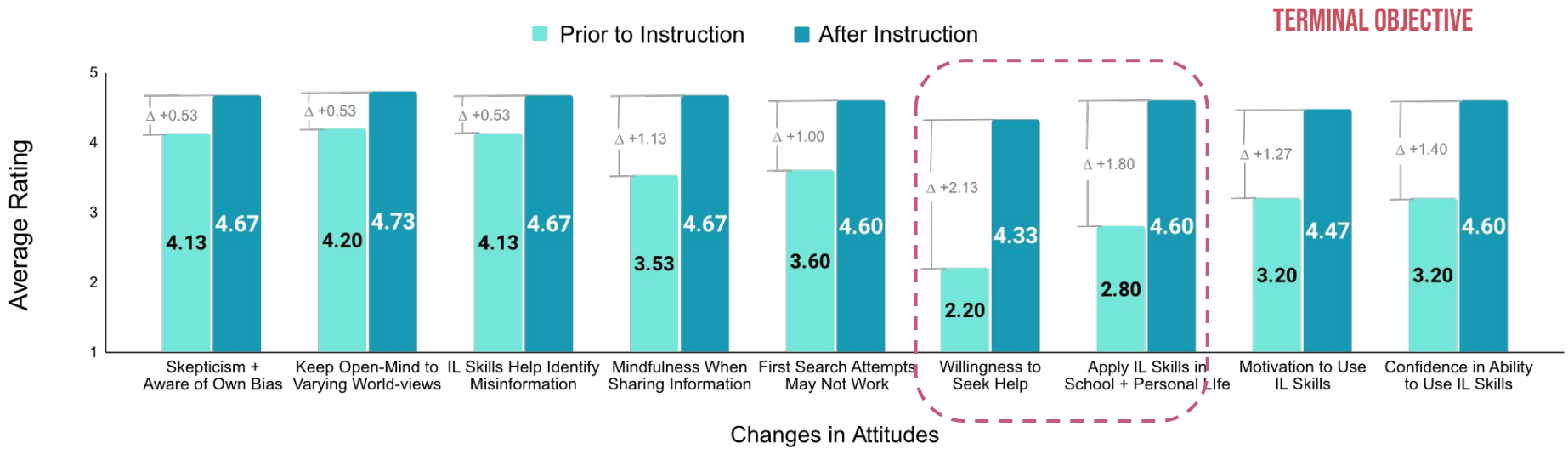
YES

100%

n = 15

AFFECTIVE OBJECTIVES

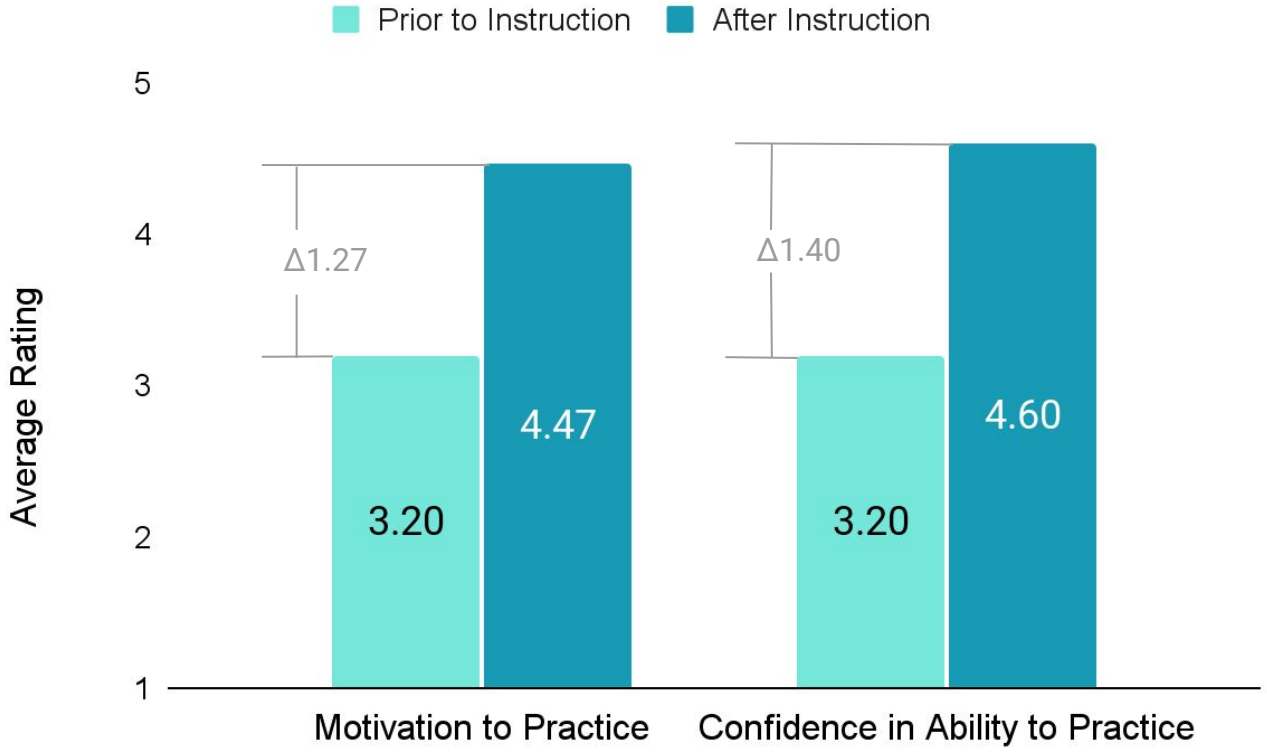
CHANGES IN ATTITUDES ABOUT INFORMATION LITERACY (*n* = 15)



1 = Strongly Disagree; 5 = Strongly Agree

TERMINAL OBJECTIVE / INSTRUCTIONAL GOAL:

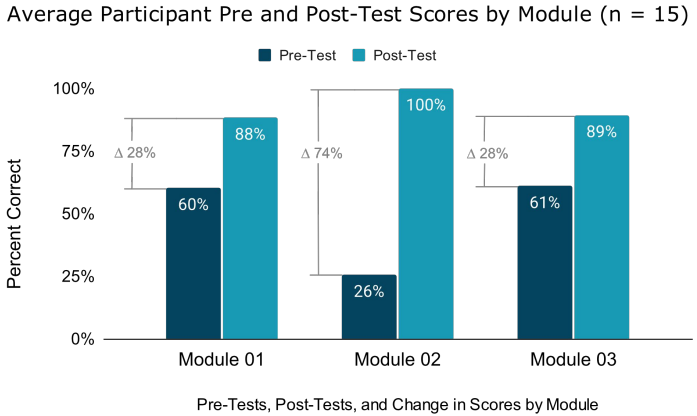
MOTIVATION AND CONFIDENCE IN ABILITY TO PRACTICE IL SKILLS (*n* = 15)



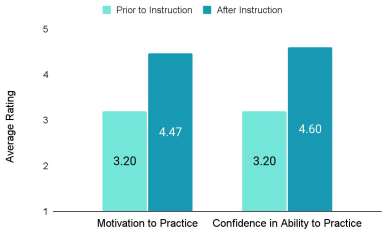
1 = Strongly Disagree; 5 = Strongly Agree

WERE GOALS MET?

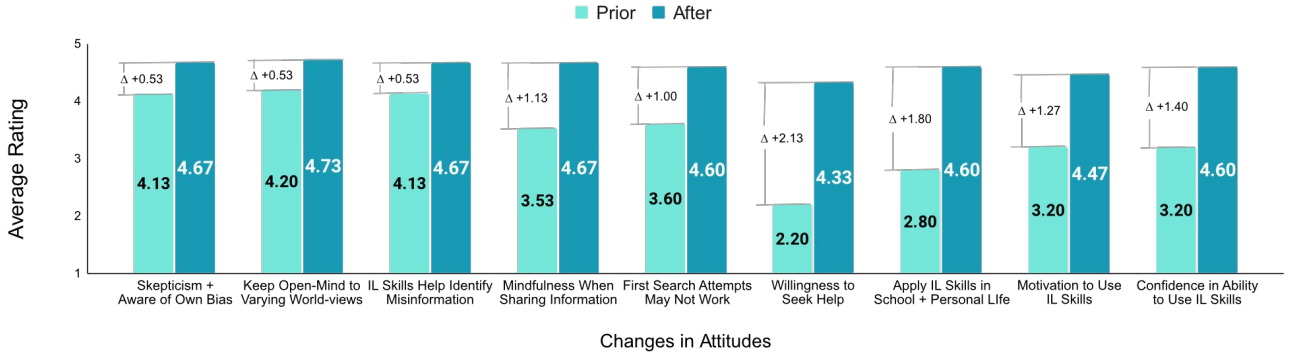
COGNITIVE



TERMINAL OBJECTIVE



AFFECTIVE



FEEDBACK FROM STUDENTS

"I would of [sic] **preferred knowing this in the beginning of the program** or even **before** the program"

"The **modules felt long**. I think if there was like a **progress bar** on the top it would **help me gauge how much further I need to go**."

MOTIVATION TO PRACTICE INFORMATION LITERACY SKILLS

"I feel like **before this course, it wasn't a thought in my mind to check** how credible a source is. **Now**, **I feel** that **I will be more aware of where I am getting my information from**."

FEEDBACK FROM STUDENTS

CONFIDENCE IN PRACTICING INFORMATION LITERACY SKILLS

"I had **no idea prior to this course how many factors I could have checked** to see if the article could be reliable. Now, **I feel confident in my ability in evaluating information**."

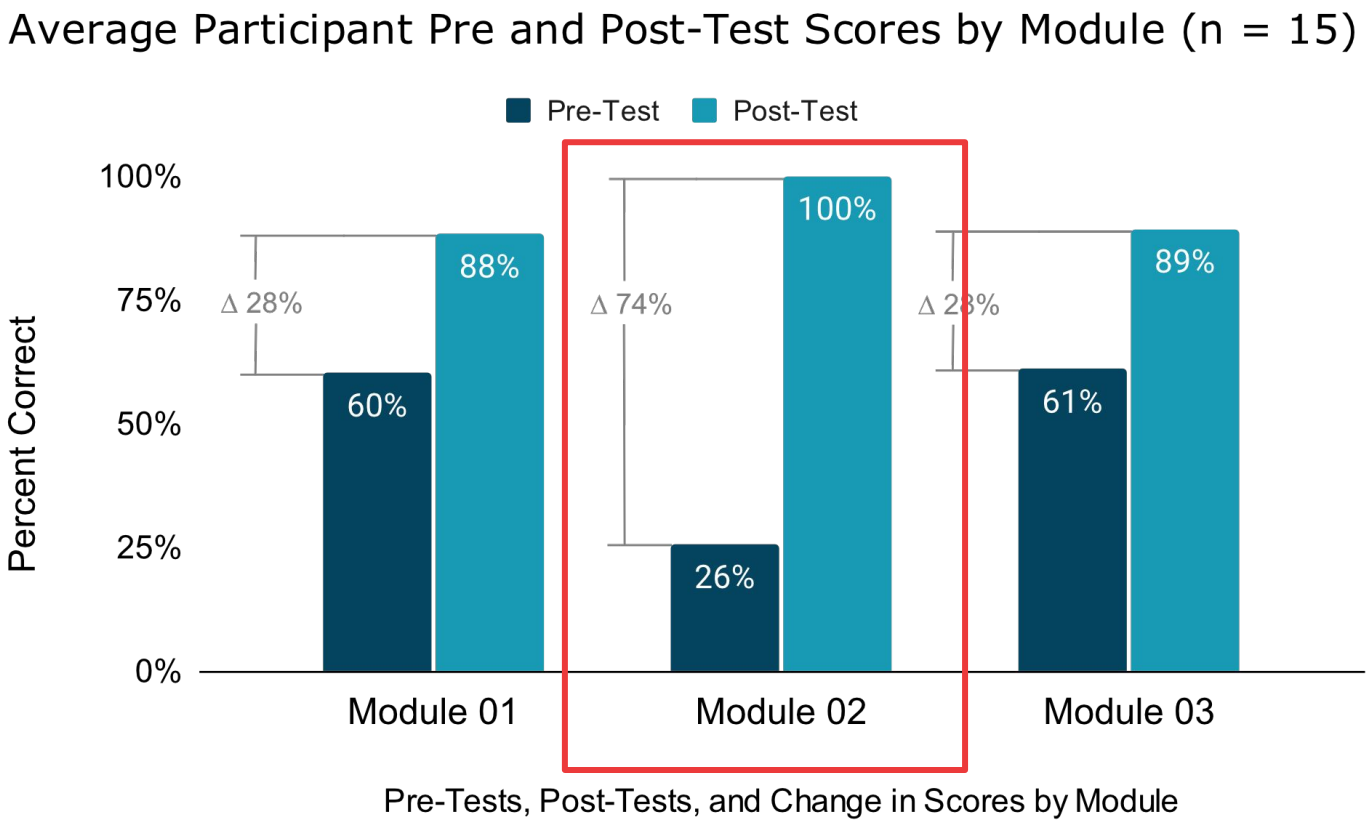
FEEDBACK FROM STUDENTS

SUGGESTIONS & RECOMMENDATIONS FOR FUTURE WORK

TAKEAWAYS

- I learned a TON but just scratched the surface
- Still more work to do: Revise and Refine
- Progress bar

TAKEAWAYS: LA AVERAGE SCORES BETWEEN PRE AND POST-TESTS
*COGNITIVE OBJECTIVES



TAKEAWAYS: TEST QUESTIONS FOR ASSESSMENT

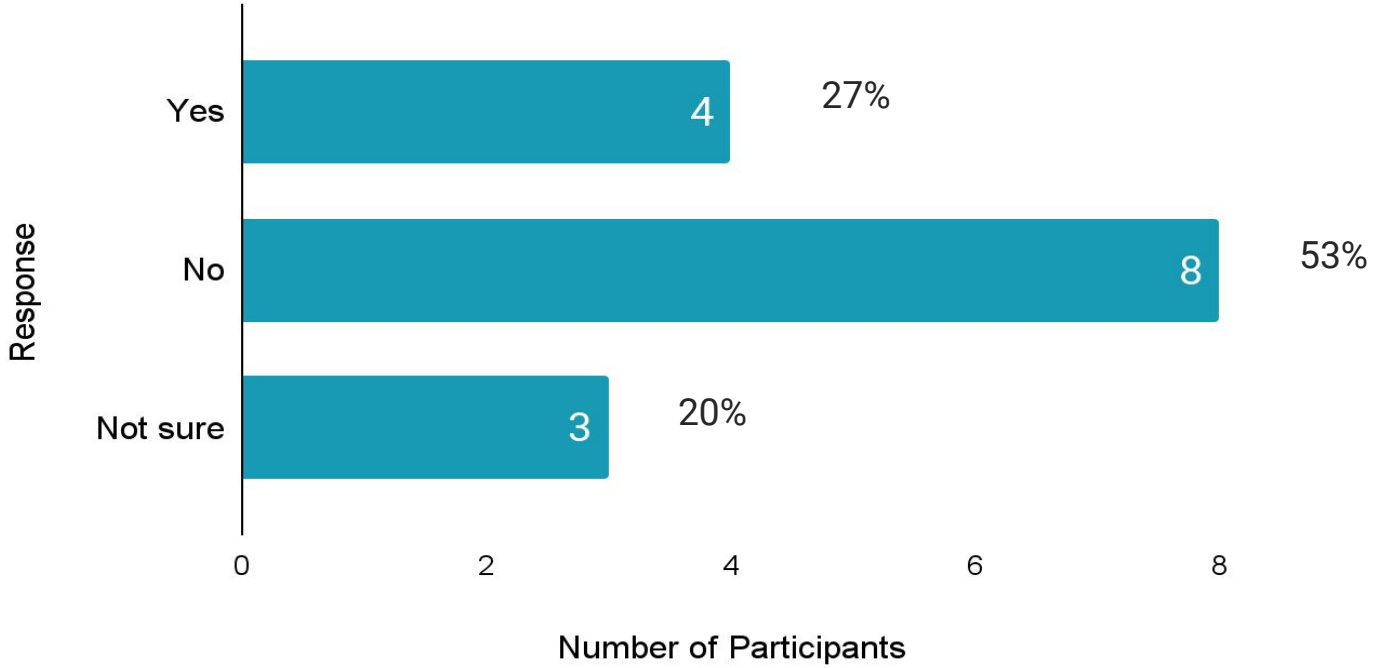
"The pre and post-questions are the same and also **idk if my answers are correct or not**." – student feedback

Open-ended questions in the pre and post-tests were difficult and time-consuming to grade

- Would be hard to scale up
- No instantaneous feedback

PARTICIPANTS: DEMOGRAPHICS

Have you ever attended a library orientation or library instructional session with any of your college classes at any of the UH system libraries? (n = 15)



REFERENCES

American Library Association. (2015, February 9). *Framework for information literacy for higher education. Association of College and Research Libraries*. http://www.ala.org/acrl/standards/ilframework.

Ghebreyesus, T. A. (2020, February 15). Munich Security Conference. *World Health Organization, Director-General, Speeches*. https://www.who.int/director-general/speeches/detail/munich-security-conference.

Keller, J.M., (2010). The ARCS model of motivational design. In *Motivational design for learning and performance: The ARCS model approach* (pp. 43-74). Springer.

Mayer, R.E. (2014). Cognitive theory of multimedia learning. In R. E. Mayer (Ed.), *The Cambridge Handbook of Multimedia Learning* (2nd ed., pp. 43-71). Cambridge University Press.

McGrew, S. (2020). Learning to evaluate: An intervention in civic online reasoning. *Computers & Education 145*, 103711. https://doi.org/10.1016/j.compedu.2019.103711.

Murthy, V. H. (2021). Confronting health misinformation: The U.S. Surgeon General's advisory on building a healthy information environment. https://www.hhs.gov/sites/default/files/surgeon-general-misinformation-advisory.pdf.

Purcell, K., Raine, L., Buchanan, J., Friedrich, L., Jacklin, A., Chen, C., & Zickuhr, K. (2012, November 1). *How teens do research in the digital world*. Pew Research Center. https://www.pewresearch.org/internet/2012/11/01/how-teens-do-research-in-the-digital-world.

Saunders, L., Severyn, J., & Caron J. (2017). Don't they teach that in high school? Examining the high school to college information literacy gap. *Library & Information Science Research, 39*(4), 276-283. https://doi.org/10.1016/j.lisr.2017.11.006.

University of Hawai'i. (n.d.) *Kapi'olani Community College: At a glance*. Accessed August 27, 2021. https://web.archive.org/web/20210812002708/https://www.hawaii.edu/campuses/kapiolani.

REFERENCES: GIFS

(n.d.). (2016, March 12). Cat typing a document on a laptop. Imgur. https://imgur.com/1SGYcMM

Abitan. (n.d.). Cartoon hello GIF by Abitan. Giphy. https://media.giphy.com/media/Rjub7AIEIbXT0tzbr3/giphy.gif.

Abitan. (n.d.). Abitan GIF ... Giphy. https://media.giphy.com/media/ovHlQnHMZgVu9XRJfX/giphy.gif.

GIPHY Studios Originals. (n.d.). Thanks thank you GIF by GIPHY Studios Originals. Giphy. https://media.giphy.com/media/xUPGcxpCV81ebKh7Vu/giphy.gif.

GOOD PUPPY. (n.d.). Black out animation. Giphy. https://media.giphy.com/media/je0LlSqM3E7Q4z0Fvw/giphy.gif.

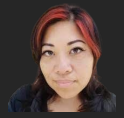
INTO ACTION. (n.d.). Election 2020 Facebook GIF by INTO ACTION. Giphy. https://media.giphy.com/media/qg7QE182TLxRHERdcJ/giphy.gif.

Silgoweb. (n.d.). Sligoweb GIF ... Giphy. https://giphy.com/gifs/website-SpopD7IQN2gK3qN4jS.

All gifs accessed November 2021.

Mahalo:

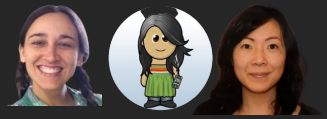
Director of Radiologic Technology at KCC: Kimberly Suwa



Critical Friends: Kelly Asato + Tyler Lum

Dr. Catherine Fulford + Dr. Daniel Hoffman + TA: Patrick Agullana
Dr. Peter Leong + Dr. Seungoh Paek

KCC Lama Library: Erica Dias + Jessica Lum +
Joyce Tokuda



SMEs and O.G. Friends: Rich Suematsu + Justin Quezon

Extended Critical Friends: Chelby Onaga + Judy Kakazu + Byron Pulu + Kawika Gonzales + Jesse Joseph + Barth "JR" Baron

‘Ohana: Karma Murayama + Roxanne Ota

MAHALO!

QUESTIONS?

allyson@hawaii.edu