Students developing multiple literacies through audio narratives on global warming solutions

Laura Guertin, Earth Science *Email: guertin@psu.edu*

Used in introductory-level, general education courses for non-STEM majors

Overarching Course Goal

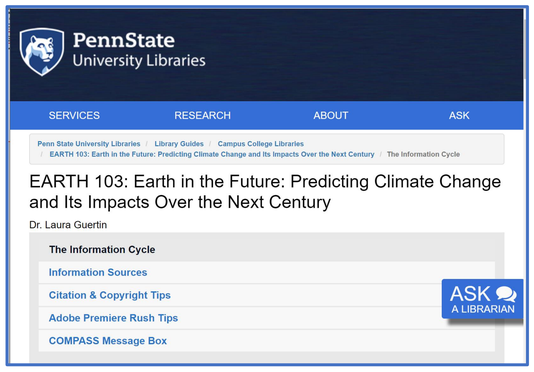
For students to successfully evaluate national and global Earth science issues, and to communicate the information through written and verbal storytelling

Semester-long scaffolding with literacies and skills development

Science Literacy

https://nagt.org/nagt/teaching_resources/literacies.html

According to NSES (1996, NAP Press), scientific literacy means a person:
- can ask, find, or determine answers to questions derived from curiosity about everyday experiences;
- has the ability to describe, explain, and predict natural phenomena;
- can read/understand articles about science in the popular press and engage in social conversation about the validity of the conclusions;
- can identify scientific issues underlying national and local decisions and express positions that are scientifically and technologically informed;
- can evaluate the quality of scientific information on the basis of its source and the methods used to generate it.

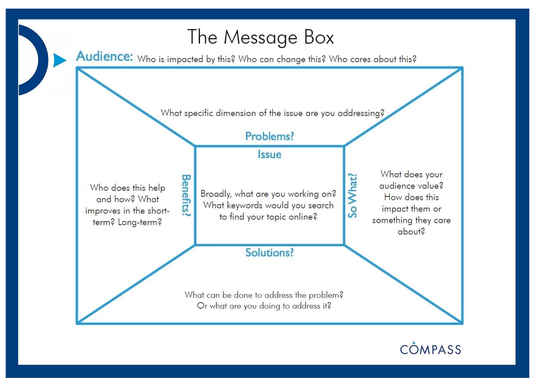


Information Literacy

https://guides.libraries.psu.edu/bw/earth103

According to the Association of College and Research Libraries (2016), information literacy is:
- the set of integrated abilities encompassing the reflective discovery of information;
- the understanding of how information is produced and valued;
- the use of information in creating new knowledge;
- participating ethically in communities of learning.

ACRL acknowledges the role of students as creators of new knowledge as well as interacting with existing information. Instruction by a campus librarian and a supporting course LibGuide assists students with this piece.

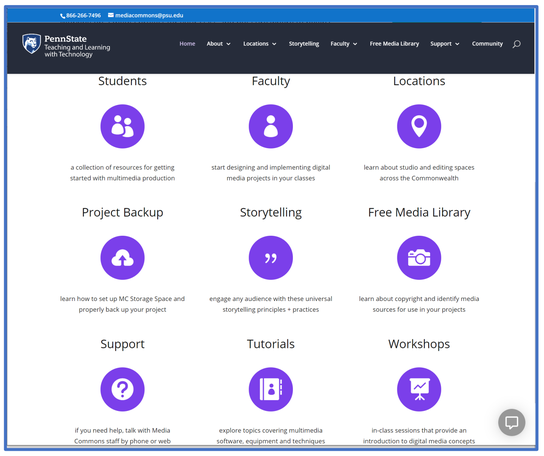


Writing/Storytelling Skills

https://www.compassscicomm.org/message-box-online

From COMPASS, a template to organize information to tell stories of science (or any discipline), beyond the report-style of writing students are used to in science courses.

Once students gather their information from reliable/current/relevant sources, students learn how to pull together information that will engage a target audience. This step is completed under the guidance and mentorship of the campus Writing Studio and peer tutors.



Digital Literacy/Skills

https://mediacommons.psu.edu/

The ALA Digital Literacy Taskforce defines digital literacy as the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both technical and cognitive skills.

Why focus on student-generated audio? From Keane, Wilson & Houlton (2014): “When we talk to the employers, one of the complaints that we hear [about recent graduates] is listening, cognitive integration . . . Particularly if you are in the consulting field, listening to clients, listening to regulatory agencies, interpreting documents and technical material that may be outside of their normal comfort zone, this is a huge area.” (see Guertin (2014) in *JCST*)

Successes/Challenges

Audio is: accessible, inclusive, transferrable skill

Successes

- Audio technology is accessible with a low entry to utilization
  - Ease of recording at home and away from campus, on cell phone
  - Equipment available for checkout from campus library
  - Software available for free (Audacity is dual platform, GarageBand comes with Mac)
- All students have access to audio
  - Ability to listen to and review audio during commute times, other times
- Students want to share recordings
  - Beyond the classroom, beyond the campus – a sense of pride in academic work
  - Can become a part of a professional ePortfolio

Challenges

- One semester is a start, but not the finale for reaching mastery of literacies
  - For example, students do not always remember information literacy tips for evaluating sources later in the semester
- Students struggle with identifying audio clips with a Creative Commons license to use in their own products, also understanding the concept of Creative Commons
- A few students may resist recording audio (speech disorder, ELL, etc.)
  - Solution – allow students to have someone else record the audio they authored
  - Solution – allow students to record in their native language

Examples

From coursework and independent study work

Coastal Processes, Hazards and Society

Students generate and record coastal optimism rally speeches, calling attention to examples of adaptation and resilience in the coastal zone

The Sea Around Us

Students generate and record a talk for “TEDxGEOSC40” on *Why the ocean matters*

Water: Science and Society

Students generate and record for the hypothetical next “NASA Golden Record” determining five major water issues worth sending on a golden disk into outer space

Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century

Students generate and record a different solution to global warming, selecting from the 100+ solutions provided by Project Drawdown

Summer REU – Independent Study as a Drawdown Scholar

Student created a mini-podcast series that explores efforts and successes in the state of Pennsylvania to reverse global warming, aligning with the mission of Project Drawdown. Student conducted 13 interviews that resulted in 11 episodes totaling ~2.5 hours focusing on solution sectors such as transportation, food, electricity generation, buildings and cities, land use, materials and waste, ocean, women and girls.

Drawing Down in Pennsylvania mini-podcast series

Audio files only - https://soundcloud.com/drawingdownpa
Full website - https://sites.psu.edu/drawingdownpa/