

Attitudinal Changes Towards the United Nations Sustainable Development Goals (SDGs) Through Student-Generated Sustainability Stories Anchored in Science and Information Literacies

Laura Guertin, Anne Jansen, James Berkey, Penn State Brandywine, Media, PA Email: guertin@psu.edu

QUESTION: Can university students have a change in attitude towards sustainable development through information research, writing and sharing three short stories focused on the SDGs?

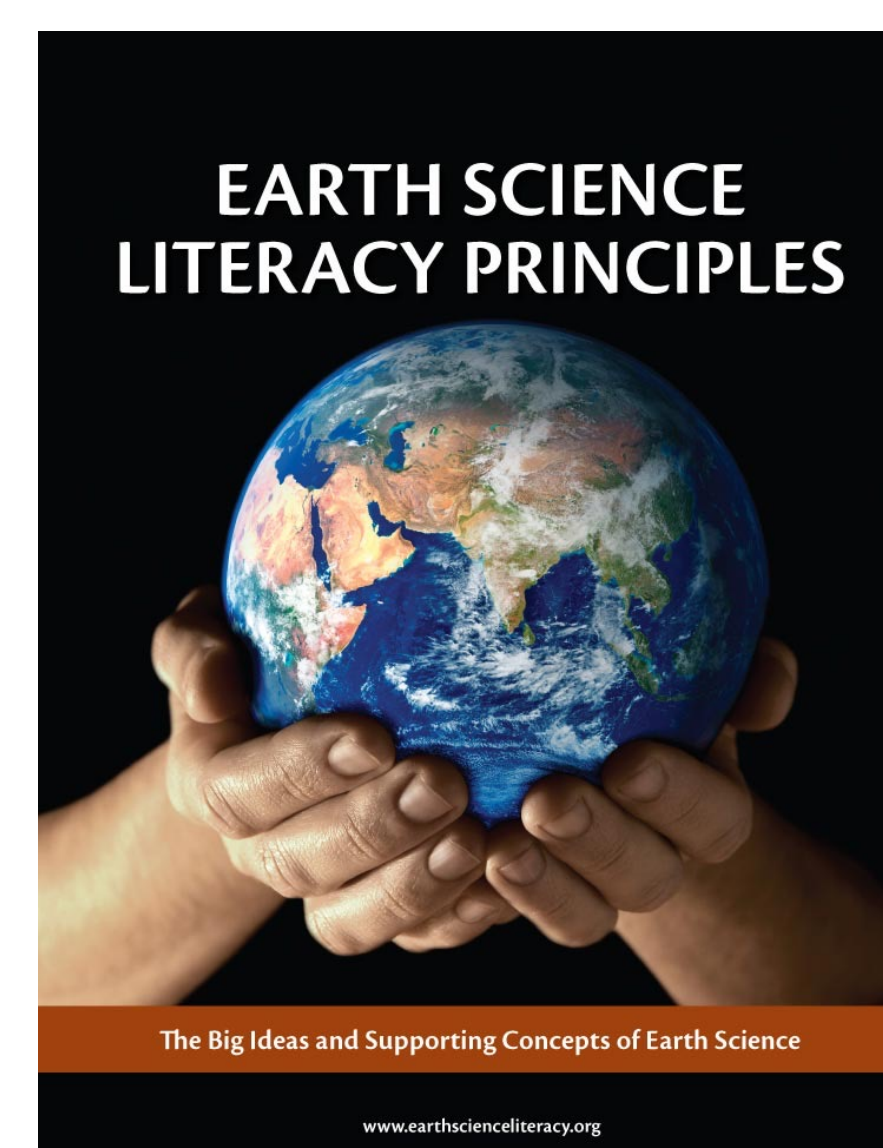
SUSTAINABLE DEVELOPMENT GOALS



The United Nations Sustainable Development Goals (SDGs) provide a framework to teach about international efforts addressing targets to end poverty, protect the planet and ensure prosperity for all.

THE COURSE: One semester (15 week) introductory-level general education course for non-STEM majors, focusing on environmental and Earth system topics

Overarching course goal: For students to understand, communicate examples, and make informed decisions relating to big ideas and supporting concepts of Earth science



Secondary course objectives include (-) To assess news with respect to geologic events or Earth science in general, to read and interpret articles in the news; (-) To articulate scientific and societal arguments for why Earth science matters

THE SURVEY: During the first and final weeks, students were provided a 20-question validated attitudinal survey on four constructs of sustainable development – environment, economy, society, and education.

Michele Biasutti & Sara Frate (2017). A validity and reliability study of the Attitudes toward Sustainable Development scale. *Environmental Education Research*, 23(2): 214-230, DOI: 10.1080/13504622.2016.1146660



The Pennsylvania State University Office for Research Protections determined that proposed activity STUDY00007920 does not require formal IRB review because the research met the criteria for exempt research.

THE ASSIGNMENT: Write three non-fiction short stories on three different Sustainable Development Goals (ones that most closely relate to the course). Use the And-But-Therefore (ABT) Framework for the stories. Each story needs to be a one-minute read (300 words), a three-minute read (900 words), and a five-minute read (1500 words).

SCAFFOLDING: Students were taken through several instructional exercises to develop their abilities to write a story (vs. a report) and find valid sources as the foundation of each story

How to write: In-class session learning about ABT format, review of weak and strong examples of ABT stories, viewing of Randy Olson's TED Talk on ABT.



Jayde Lovell
@JaydeLovell

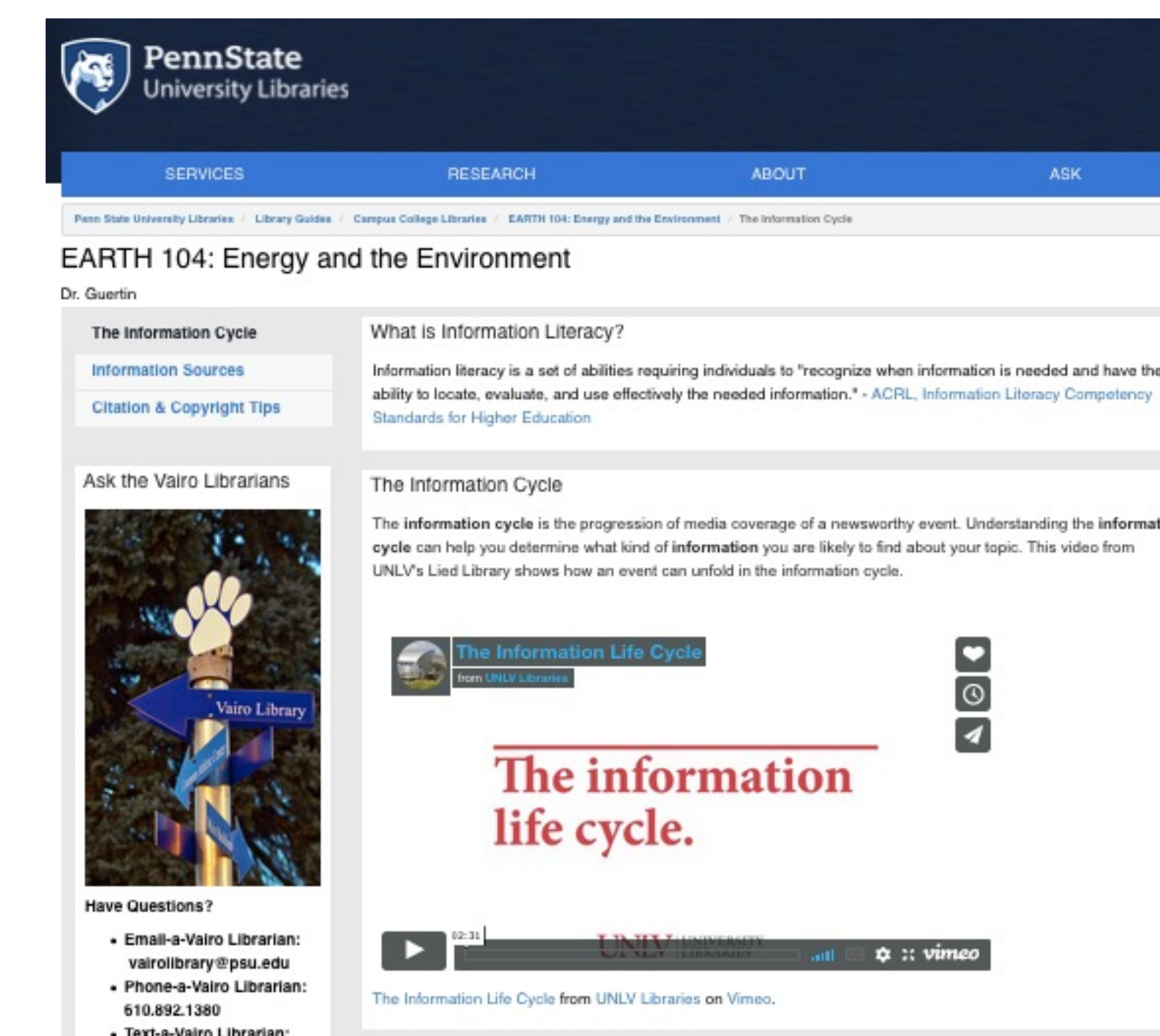
Hey I just met you
AND this is crazy
BUT here's my number
SO call me maybe

Example of ABT format,
posted on Twitter
September 12, 2017



SCAFFOLDING (cont.)

How to search for credible sources: Session with Reference & Instruction Librarian, learning about the information cycle. Practice using online database search functions and learning search strategies. Determining credibility, relevance, authority, and purpose of sources. Custom LibGuide for course with recommended sources for students to utilize. URL: <https://guides.libraries.psu.edu/bw/earth104>



How to improve writing: Writing Studio tutors led two in-class sessions on best practices in peer review via anonymous written feedback and group read-aloud. Students required to make one visit to the Writing Studio to improve stories and citation accuracy.

THE DATA: A t-test analysis with two-samples assuming unequal variables was performed on the pre- and post-survey data. Students responded to a Likert scale to each question ranging from 1 (strongly disagree) to 5 (strongly agree). In the next column are the survey questions where statistical significance has been determined.

CONCLUSIONS: (-) Students worked to improve multiple literacies through writing sustainability-themed short stories; (-) Survey confirms improved student attitude on three of the four sustainable development constructs.

THE DATA: Questions/results where the pre-post differences are statistically significant at the 95% confidence interval are reported here.

ENVIRONMENT

2 of 5 questions showed a statistically significant increase

[Q] **Environmental protection and people's quality of life are directly linked**
Mean pre=3.7, post=4.2; n pre=37, post=31;

[Q] **Environmental protection is more important than industrial growth**
Mean pre=3.2, post=3.8; n pre=37, post=31;

ECONOMY

0 questions showed a statistically significant increase

SOCIETY

1 of 5 questions showed a statistically significant increase

[Q] **Society should further promote equal opportunities for males and females**
Mean pre=4.1, post=4.5; n pre=35, post=31;

EDUCATION

4 of 5 questions showed a statistically significant increase

[Q] **Teachers in college should use student-centered teaching methods**
Mean pre=3.9, post=4.2; n pre=35, post=31;

[Q] **Teachers in college should promote interdisciplinarity between subjects**
Mean pre=3.5, post=4.0; n pre=35, post=31;

[Q] **Teachers in college should promote the connection between local and global issues**
Mean pre=3.9, post=4.3; n pre=35, post=31;

[Q] **Teachers in college should promote critical thinking rather than lecturing**
Mean pre=4.0, post=4.3; n pre=35, post=31;