Developing a Scalable Online Scientific Information Literacy Module

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Outline

Developing the module
  Background
  What we did and why

The Framework
  Incorporating specific frames
  What librarians brought to the process

Future Plans
  Assessment
  Tailoring the content
  Expansion
Michigan State University Context

Large research university
Approx. 51,400 students

Overwhelming need for instruction

CISGS
29 lecture sections
80 lab sections
Discovering a need

Lack of scientific reasoning skills
Critical think needs to improve
Questionable citations

B.o.B

@bobatl

A lot of people are turned off by the phrase "flat earth" ... but there's no way u can see all the evidence and not know... grow up

The cities in the background are approx. 16 miles apart... where is the curve? please explain this
7:05 PM - 24 Jan 2016
3,127 retweets 2,565 likes
Considerations

Scalability
- Visiting each class in person not possible
- Opportunity for a big impact

Assignment format
- Assignments vary by class
- Use of scholarly literature not universal
Developing the module

Partnered with four section instructors
  Group met over the course of fall 2016 semester
  Instructors provided feedback on desired outcomes

Focused on media reports on scientific studies
  Inspired by John Oliver’s report
  Located research articles mentioned in media
  Paired articles with broadcast transcripts of media coverage from Lexis Nexis
  Provided a series of questions comparing the two
A Glass Of Red Wine Is The Equivalent To An Hour At The Gym, Says New Study

January 17, 2018 by THSJ — Leave a Comment

Love a good glass of red wine, but hate going to the gym to work it off? This news will make your day.

Research directed by the University of Alberta in Canada discovered that health benefits in resveratrol, a compound found in red wine, are similar to those one gets from exercise. According to the lead researcher, Jason Dyck, the results will particularly help those who are unable to exercise for various reasons.
Media claims

A Glass Of Red Wine Equals An Hour At The Gym!

January 17, 2016 by The Washington Post

Medicine has long claimed that a glass of red wine a day is good for your heart. Now it’s claimed that it’s good for your waist and waist. According to a new study, drinking wine is as effective as exercise in reducing body fat.

Researchers from the University of Basel in Switzerland found that drinking red wine was as effective as doing moderate-intensity exercise in reducing body fat. The study, published in the journal Circulation, followed 165 people for six weeks.

The researchers divided the participants into three groups: a control group, an exercise group, and a wine group. The control group continued their usual diet and exercise habits. The exercise group performed moderate-intensity exercise, such as walking or cycling. The wine group drank one glass of red wine a day.

At the end of the six-week study, the researchers found that the wine group lost 0.7 kg (1.5 pounds) of body fat, while the exercise group lost 0.9 kg (2 pounds). The control group lost 0.3 kg (0.6 pounds).

The study suggests that drinking red wine could be an effective way to reduce body fat, especially for people who do not have time to exercise regularly.

Study links sugar to cancer: How to reduce your risk

Dr. David B. Samadi

January 17, 2016

Sugar is a major contributor to cancer risk and is linked to many types of cancer, including breast cancer. Reducing sugar intake can help reduce your risk of cancer.

According to the American Cancer Society, sugar is a major contributor to the development of cancer. The American Cancer Society recommends limiting sugar intake to less than 10% of daily calories. This means consuming less than 100 grams of sugar per day for most people.

Dr. David B. Samadi, a urologist at Memorial Sloan Kettering Cancer Center in New York, says that reducing sugar intake can help reduce your risk of cancer.

“Sugar is a major contributor to cancer risk and is linked to many types of cancer, including breast cancer,” says Dr. Samadi. “Reducing sugar intake can help reduce your risk of cancer.”

Dr. Samadi recommends limiting sugar intake to less than 10% of daily calories. This means consuming less than 100 grams of sugar per day for most people.

Reducing sugar intake can help reduce your risk of cancer.

In addition to reducing sugar intake, Dr. Samadi recommends eating a diet rich in fruits and vegetables, which are rich in antioxidants and other nutrients that can help reduce cancer risk.

“Eating a diet rich in fruits and vegetables can help reduce cancer risk,” says Dr. Samadi. “Fruits and vegetables are rich in antioxidants and other nutrients that can help reduce cancer risk.”

Dr. Samadi also recommends getting regular exercise, avoiding tobacco and alcohol, and getting routine screenings for cancer.

“Getting regular exercise can help reduce cancer risk,” says Dr. Samadi. “Avoiding tobacco and alcohol and getting routine screenings for cancer can also help reduce cancer risk.”

Reducing sugar intake can help reduce your risk of cancer. Eating a diet rich in fruits and vegetables, getting regular exercise, and avoiding tobacco and alcohol can also help reduce cancer risk.
Media claims
Media claims
## Module Questions: Author

<table>
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<tr>
<th>Questions</th>
<th>News Coverage</th>
<th>Scientific Study</th>
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<tbody>
<tr>
<td>Who is (are) the author(s)? What information can you find about them from looking at this piece? (i.e. their credentials, what do they do for a living, history of publishing, etc?)</td>
<td></td>
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<td>What do you think the author(s) were trying to accomplish by writing and publishing this article? What was their possible purpose?</td>
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<tr>
<td>What do you think motivated the author(s) to write this article? Why do you think they find the topic worth writing about? Is the original research question or purpose of the study indicated?</td>
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</tbody>
</table>
## Module Questions: Article

<table>
<thead>
<tr>
<th>Article</th>
<th>What are the claims or conclusions presented in the article? What do they lead you to believe? Are the claims supported in some way - if so, how? What is used for evidence?</th>
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<tbody>
<tr>
<td></td>
<td>Does the article contain any subjective, general or broad terms such as &quot;good/bad for you,&quot; or language that might influence your perception of the study in a positive or negative light? Describe.</td>
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<td></td>
<td>Is there anything in the article that lends authority or credibility to its content? If so, what?</td>
</tr>
</tbody>
</table>
# Module Questions: Publication

<table>
<thead>
<tr>
<th>Publication</th>
<th>Where does the story appear? (Is it found on a news website, in a scientific journal, magazine, etc)</th>
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<td>Do you think that this publication has an interest in providing a certain perspective on this study? Why or why not? How can you tell?</td>
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<td></td>
<td>Can you tell from this article who is funding or supporting the study? What interest might those funders take in the outcome of the study?</td>
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Framework Connections - Conversations

Framework as “conversation exploder”

Expanded possibilities for design and purpose beyond a checklist approach

Provided a mechanism to move from “I want them to use good sources” to “What does a scientist think is important for a non-science major to know/do in regard to scientific information?”
Framework Connections - Practical

Really interesting conversations:

- Added more time to the process
- Worth the extra time investment to come to a point of agreement on an outcome
Framework Connections: Outcome

Learning outcome:
Students will compare and contrast a scientific study and its popular news coverage in order to interpret media depictions of scientific research.

Assignment objective:
Replies to the assignment will be used to foreground and frame a future class discussion on scientific inquiry and communication.
Information Creation as a Process

articulate the **capabilities and constraints** of information developed through various creation processes

assess the fit between an information product’s creation process and a particular information need

develop, in their own creation processes, an understanding that their choices impact the purposes for which the information product will be used and the message it conveys

recognize that information may be **perceived differently** based on the format in which it is packaged

understand that **different methods** of information dissemination with different purposes are available for their use
Secondary Frames

Authority is Constructed and Contextual; Scholarship as Conversation

recognize that authoritative content may be packaged formally or informally and may include sources of all media types

develop awareness of the importance of assessing content with a skeptical stance and with a self-awareness of their own biases and worldview

critically evaluate contributions made by others in participatory information environments
What did librarians bring to the table?

Practicality: Organization of both conversations and materials, stable links, copyright considerations, location of best copies of articles

Theory: The Framework - the ability to identify, articulate and express real needs; structure and content for the module

Perspective: Questions of how rhetoric, language, and popular communication relate to scientific reasoning and disciplinary communication
Future Plans

Assessment of the Pilot

Tailoring to Course Content

Expansion of the Program
Image Credits

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http://www.foxnews.com/health/2016/01/06/study-links-sugar-to-cancer-how-to-reduce-your-risk.html


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Rocket Launch: By NASA/Bill Ingalls [Public domain], via Wikimedia Commons. https://commons.wikimedia.org/wiki/File%3ASoyuz_TMA-5_launch.jpg