Seeing the Forest through the Trees:
Providing Instruction on Reading Journal Articles for All Disciplines

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Hello!

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e-Learning, Instructional Technology & Education Librarian
Why would librarians provide this kind of instruction?
Our Rationale

Direct connections to the ACRL Framework

- Understanding what’s in a scholarly article to see scholarship as a conversation
- Recognizing that information has value by identifying how knowledge is presented in different ways
- Developing an appreciation for information creation as a process by seeing how the pieces of an article fit together

Is anyone else at your institution doing it?!

Face-to-Face Instruction for Life & Physical Sciences
The Basics

- Offered in Biological Sciences & Chemistry upper level courses
  - In addition to trad. IL instruction
- Began in winter 2017
Active learning exercise

Which article was published in a peer-reviewed scholarly journal?

- "A Love-Hate Relationship with Drones:"
- "Active learning exercise"

Which article was published in a scholarly peer-reviewed journal?

- "A Love-Hate Relationship with Drones:"
- "Active learning exercise"

Which article was published in a popular magazine/newspaper?

- "A Love-Hate Relationship with Drones:"
- "Active learning exercise"

How can you tell which article was published in a scholarly publication? List several features of each type of publication to support your answer.

<table>
<thead>
<tr>
<th>Scholarly Publication</th>
<th>Popular magazine/newspaper</th>
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<tbody>
<tr>
<td>Academic references</td>
<td>None</td>
</tr>
<tr>
<td>Complex language</td>
<td>Informal language</td>
</tr>
<tr>
<td>Professional tone</td>
<td>Conversational tone</td>
</tr>
<tr>
<td>Material footnotes</td>
<td>None</td>
</tr>
<tr>
<td>Advanced vocabulary</td>
<td>Simple vocabulary</td>
</tr>
</tbody>
</table>

1.3/7 COSMOS & CULTURE
COMMENTARY ON SCIENCE AND SOCIETY
A Love-Hate Relationship With Drones
September 8, 2015 | 21 AM ET

Commentary
BARBARA J. KING
In The New York Times travel section Sunday, Stephanie Rosenblum described a hot day this
summer when she sat in the Roman amphitheater in Aixes, France. As she imagined scenes Van
Gogh may have observed there during the 19th century, she says, a soft whirring sound broke into her
reverie. Rosenblum writes:

"Something was buzzing near. I looked around and saw nothing — until it and I were eye to eye.
On rather, eye to lens. A drone resembling one of those round Rondus robotic vacuums had
levitated from the pity of the nearly 2,000-year-old arena and was beaming in the air between me
and the cloudless horizon."

I’d wager that chimpanzees Tushi and Rainee, residents of the Royal Barge Zoo in Aixes,
Netherlands, could relate. Video of Tushi, knucking a Dutch TV crew’s €2,000 unmanned drone
out of the sky with a stick went viral back in April.

A new paper in the journal Primates, authored by ethologists Jan A. R. M. van Hoff and Bus
Lukkenaker, offers the back story to what happened that day and offers new evidence of
chimpanzees planning skills.

The TV crew, on the zoo to shoot a documentary, set up the drone over the enclosure of the
chimpanzees without, at first, filming anything — a sort of dry run. The apes, all on the ground
at that point, reacted with excitement. "Some were seen to grab a yellow branch, and fear of
damage seems to drive the chimpanzees on the side where the drone was hovering, holding a
branch," van Hoff and Lukkenaker write.

When the drone took off again, this time filming, it closed in especially on Tushi and Rainee.
The paper continues:

"The operator of the drone had clearly underestimated the significance of the fact that both
animals had carried with them a long twig when they climbed the scaffolding. This is not a
frequently observed behavior of these chimpanzees."

Tushi seized the drone twice and, on her second pass, crashed it. During this action, she
grasped — it wasn’t a fair shot — he made but a single indicator, the ethologists write, "of an
incentive and determined exertion of force, homologous to what humans do in comparable
situations."
Initial Poll Everywhere Questions

In how many courses, internships, jobs, etc. were you required to read and understand scholarly articles? Include this course.

- 1-2: 25%
- 3-5: 25%
- 6-8: 50%
- 9+: 0%

What do you find difficult about reading scholarly articles?

When poll is active, respond at PollEv.com/joannathiele871
Text JOANNATHIELE871 to 37607 once to join

- "Wording isn't always very eloquent, blocks of text can be tiring."
- "Is the data actually accurate?"
- "The wording"
- "Interpreting the results"
- "Understanding the various jargon."
- "Comprehending all the data"
- "The language can be dull and hard to process."
- "The data and understanding the field itself and the history behind the field"
- "sometimes it's hard to understand advanced terminology or certain scientific concepts"
- "the language/vocabulary used."

Poll Everywhere
“Nothing makes you feel stupid quite like reading a scientific journal article”
- Adam Ruben, Ph.D

Main sections of scholarly articles:
- Citation
- Abstract
- Introduction
- Methods
- Results & Discussion
- Conclusion
- References
- Supplementary Information (sometimes included)
Don't read from beginning to end

1. Title, Authors & Citation
2. Abstract
3. Introduction
4. Conclusion
5. Section headings/sub-headings
6. Skim the figures (and captions!)
7. Methods
8. Results & Discussion

Conquering difficult terminology

- Look up unfamiliar terms immediately
  - Write them on the article
- Biological terms
  - Penguin Dictionary of Biology
  - McGraw-Hill Encyclopedia of Science and Technology
- Medical terms
  - Merriam-Webster’s Medical Dictionary
  - Dictionary of Medical Terms
Conquering the Results section

- ‘Unpack’ each figure
  - What’s being measured or described?
  - What technique was used?
  - How many replicates?
  - Was a control used?
  - What do the error bars mean? (if applicable)
- Don’t forget the caption!
- Talk to your professor! He/she is the expert in this area

Concentration tips

- Minimize electronics
  - Self-Control
  - Anti-Social
- Use headphones/earplugs to minimize noise
  - Quiet study area: 3rd floor of Kresge Library!
- Self-care: eat, sleep, exercise

Photo by Alexander van Dijk via Wikimedia Commons (CC BY-SA 3.0)
Final Poll Everywhere Question

After today's presentation, how can you improve your reading or study habits?

- "Don’t read all articles at once and take frequent breaks" 2 months ago
- "Throw phone away" 2 months ago
- "Download anti social" 2 months ago
- "Do not burn out" 2 months ago
- "Read strategically" 2 months ago
- "Less distractions" 2 months ago
- "Not reading a scholarly article in order" 2 months ago
- "Not reading chronologically" 2 months ago
- "Don't procrastinate, be proactive." 2 months ago
- "Breakdown a better plan of attack," 2 months ago
- "Getting rid of distraction" 2 months ago
- "set more realistic daily goals" 2 months ago

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Summative Assessment \( (n = 31) \)
Would face-to-face instruction be feasible at your institution?
While this could be a helpful presentation, I was presented this information four months before graduation. At that point, it is too late. I already know how to read journal articles as I have probably read 50+ articles for my undergrad. She gave us tips that would be great for students who just started reading these, but it was unhelpful for me. I already knew to highlight or write on the article, discuss it, read it multiple times, look up unfamiliar terms. She did talk about unpacking the figure which was helpful. - BIO 4972 student
Reading Scholarly Articles e-Course for All Disciplines
Established practice of developing freestanding e-learning “courses”
- Using & Citing Sources (plagiarism)
- Copyright & You
- Research Unbound (intended for transfer students)

Courses are **self-enrollable, self-paced, and credentialed with badges of completion**
Online Tutorial Logistics

- 20 minutes to complete
- Three lessons, plus a final quiz
- Badge earned with a score of 80%+
  - Does not expire!
- Lessons/quiz must be completed in order
Describe the kinds of information you’ll find in scholarly and popular articles, and identify the differences between these kinds of resources.

Identify the sections of a scholarly article as well as the kinds of information you can expect to find in each section.

Explain strategies to read scholarly articles intentionally, and pick out the strategies that will be most useful as you read scholarly articles in your discipline.
Lessons’ Learning Outcomes

Kinds of Information You’ll Encounter
- Describe the kinds of information you’ll find in a scholarly article.
- Describe the kinds of information you’ll find in a popular article.
- Identify the differences between a scholarly article and an article you might find in a popular source such as a newspaper, magazine, or website.

Dissecting Scholarly Articles
- Identify the sections of a scholarly article.
- Describe the kind of information you can expect to find in the different sections of a scholarly article.

Reading Scholarly Articles Efficiently
- Describe strategies to read scholarly articles meaningfully and intentionally.
- Identify which strategies will be useful for you to use as you read scholarly articles in your discipline.
Content Development Process

- Worked from Joanna’s instructional outline and content
  - Broadened to **cover all disciplines**
- **Consulted with liaison librarians** to find representative scholarly articles for their disciplines
- Used **e-Learning best practices** to guide content development
Clark & Mayer (2011) advise using the:

- **Multimedia principle**: Words and examples of articles
- **Contiguity principle**: Content aligned with examples
- **Personalization principle**: Conversational text
- **Segmenting & pre-training principle**: Chunking content

Also, **formative** (in-lesson questions) and **summative** (final quiz) **assessment**

Choose Your Own Adventure!
Pilot testing and initial feedback

- e-Course full draft completed in December 2018
- Shared with library colleagues for feedback - suggestions included:
  - PDF handout that students could download
  - Making key ideas bold / clearer (very text-heavy)
- Pilot tested with library student employees
  - Comments on timing, pacing, any errors!
What kinds of e-Learning options exist at your institution?
Winter 2019 Data
Enrollment Data

Preliminary results from a very soft roll-out:

- 67 users earned the **Reading Scholarly Articles badge**
  - 106 attempts at final quiz - 1.48 attempts/user
- Average score of first attempts: **79.6%**
- Average score of final attempts: **92.2%**
Demographic Data

- 97 undergraduate attempts
- 4 graduate attempts
- 1 faculty member attempt
- 4 indicated no response
Discovering the Online Tutorial

How students (and one faculty member) discovered the tutorial:

<table>
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<th>Method</th>
<th>Percentage</th>
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<tr>
<td>I was <strong>assigned</strong> this tutorial for a class</td>
<td>90%</td>
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<tr>
<td>Someone <strong>recommened</strong> this tutorial to me</td>
<td>6%</td>
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<td>I <strong>found</strong> this tutorial through the library website</td>
<td>1%</td>
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<td>No response</td>
<td>3%</td>
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## PERFORMANCE DATA

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You've got two articles on the same topic in front of you: One is a scholarly article, and one is a popular article. Match the feature you'd look for to determine which article is which.

- Has detailed figures and tables, with explanations in captions
- Employs technical terms or words specific to a field
- Uses references cited in the text to direct you to related information
- Written with a general audience in mind
- Talks about others’ work on a topic but doesn’t present new ideas
- Published in a newspaper, magazine, blog, or social media site

For the above features:
- Scholarly article
- Popular article
Your professor has assigned you three scholarly articles to read for class next week. She’s asked you to come prepared to talk about what each researcher believes is important about their data and what it means. Which section of these articles should you look at closely?

Select one:
- a. Findings, Results, or Discussion
- b. Introduction
- c. Conclusion or Future Directions
- d. Literature Review or Background
- e. Methods or Methodology
- f. List of References
### PERFORMANCE DATA

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PERFORMANCE DATA

98 correct attempts
8 incorrect attempts
Ongoing updates and revisions

- Gathering **informal feedback** from disciplinary faculty to adapt course
  - Including a **metasynthesis article** for one faculty
- Evolving **technological options** for delivering content
  - Now: **Limited** number of **branching** options (combining disciplines)
  - Looking forward: **More flexibility** in content delivery and **responsiveness** in design
Important tension:

Is this e-course *part of* an instructional solution?

Or, is it *the only* instructional solution?
How can this resource be a solution, rather than the only solution?
Future Plans!

Continue / add to face-to-face instruction in sciences

Market / promote in fall 2019

Review, revise, assess, evaluate
Access the tutorial:
bit.ly/OU-ReadingScholarlyArticles
Guest username: sourcesgt
Guest password: libsrc
Thank you!

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