Universal Design for Learning, the Library, and STEM: Common Cause, Uncommon Ground

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Tutorial

Purpose:
- Reduce questions about assignment
- Help when there is no time in class for library session
- Market the Science Librarian

Topics Covered:
Choose a Topic
Scholarly/Popular
Primary/Secondary
Find Articles
Evaluate Webpages
CSE Citation
Get Help

Development:
- Science and Instructional Design Librarians
- Feedback from Biology instructors
- ACRL-STS Info Lit Standards for STEM

Time Needed:
30 minutes-1 hour

Accessibility:
Plain-text scripts
Audio recordings
Universal Design for Learning principles

Instructional Extras
Learning Objectives
"Tutorial Feel"
Navigation
Table of Contents
Cartoons
Shareable by others through LibGuides

Technology Used:
LibGuides
Vegas
Sound Forge
Camtasia
Flash Catalyst
Photoshop
ToonDoo

Assignment

Undergraduate Biology Courses BIOL 1051 &1101
Two similar assignments.
Students are required to find research articles in a Biology database; Focus on primary and secondary distinction.
Assignments are either a lab report or oral presentation. These foundational skills are needed in higher level Biology courses.

Lab class format: No time in course sections for library instruction

Led to many questions at the Reference desk and for the Science Librarian

Comics

Literature Review

Aydelott, K. (2008). Using the ACRL information literacy competency standards for science and engineering/technology to develop a modular critical-thinking-based information literacy tutorial. *Science and Technology Libraries*, 27(4), 19-42. http://dx.doi.org/10.1300/J122v27n04_03

Colosimo, A. L., & Kasuto, E. (2012). Library video tutorials to support large undergraduate labs: Will they watch?. *Issues in Science and Technology Librarianship*, 68. doi:10.5062/F46H4FBH

Nichols, J., Shaffer, B., & Shockey, K. (2003). Changing the face of instruction: Is online or in-class more effective?. *College and Research Libraries*, 64(5), 378-388.

Scaramozzino, J. M. (2008). An undergraduate science information literacy tutorial in a web 2.0 world. *Issues in Science and Technology Librarianship*, 55. doi:10.5062/F4VM4960

Zhong, Y. (2012). Universal design for learning (UDL) in library instruction. *College and Undergraduate Libraries*, 19(1). 33-45. http://dx.doi.org/10.1080/10691316.2012.652549

Research

Study #1: Student Skills Test and Survey

Qualitative and quantitative methods used in an online setting
Institutional Review Board: Certified Exempt

Study population is students in BIOL 1051/1101
Recruitment: via short presentation by Science Librarian, email
Testing to occur in Summer and Fall 2013 semesters

Testing includes questions about information literacy
Survey portions ask for feedback on the tutorial
Survey distributed via Qualtrics in tutorial & email

Aims: for improvement of the Biology tutorial for future classes

Study #2: Usability Testing

Qualitative methods used in an in-person setting
Institutional Review Board: Certified Exempt

Study population is 6 students with learning disabilities
Recruitment is via email
Testing to occur in Fall 2013 semester

Testing includes questions about UDL Principles
Students will be timed while they locate key information in the tutorial.
Study will be completed in-person

Aims: Test usability, UDL principles

Purpose

1. To assess the scholarly effectiveness of a science information literacy tutorial for undergraduate students in BIOL 1051/1101.
2. To test the use of Universal Design for Learning (UDL) principles in the tutorial for accessibility to students with different learning styles and learning disabilities.

Hypothesis

Applying UDL principles to online information literacy tutorials, students will successfully locate scholarly literature for their biology coursework. The UDL principles will allow students with physical or learning disabilities to be successful. Additionally, the tutorial will be helpful for students with different learning styles.

Research Questions

1. Does the biology tutorial successfully instruct students on finding primary vs. secondary sources for their biology assignments in BIOL 1051/1101? If not, how can it be improved?
2. Are UDL principles apparent and effectively used to increase the usability of the tutorial for students with different learning styles and disabilities?

& Test Questions

Skill Mastery Section

- What is an example of a primary source in Biology? (This section multiple choice)
- What is an example of a secondary source in Biology?
- Where is the best place to begin a search for a scholarly article?
- What does a methodology or methods section of a scholarly research article contain?
- Which of these articles would be considered to be a primary source that you could cite for this assignment?
- What would be a good keyword search to find articles about this research question?

What is Colony Collapse Disorder and what are the causes of decline in bee populations in the US?

Tutorial Effectiveness

- In what order did you try to complete the library portion of the assignment? (Ordering)
- What was the first thing you noticed about the page? (Hotspot)
- Where would you click to find information about searching for a scholarly article? (Hotspot)
- While using the tutorial, were you ever confused or unable to find information? (Multiple choice)
- Which method do you believe would help you best learn to use the library for Biology?
- What type of learner do you tend to be? Auditory | Visual | Kinesthetic | I don't know
- How much time did you spend on the tutorial? In the database? (Numeral)
- Grade the tutorial for effectiveness (Grade A-F)

Universal Design for Learning

Say What?

A framework to develop educational resources.
Three principles:
- Multiple means of representation
- Multiple means of action/expression
- Multiple means of engagement

An Idea

- Science Librarian involved with Project STEPP, a program for students with learning disabilities
- All students can benefit from differentiated instruction, not just those with disabilities.
- Map out UDL principles in the tutorial

Text

- A necessary evil? Preferred learning style?
- Reduce text to only necessary concepts.
- Include plain-text accessible scripts for video tutorials.

Audio

- Create audio files for important concepts
- Helps students with dyslexia, audio learners
- Files can be made in simple audio recorder
- Free streaming by SoundCloud

Video

- Use video for visual concepts, website demos
- Helps students who are visual learners, ADHD
- Can reuse YouTube, basic library tutorials
- Made using Camtasia, Vegas, or Movie Maker

Movement

- Create interactive tutorials with user motion
- Helps students who are kinesthetic learners
- Breaks up tutorial, fights boredom
- Made using Flash Catalyst. Soon HTML 5

Connect

Tutorial:
http://libguides.ecu.edu/biol1101

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