Views on Information Literacy in Librarianship
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Elsevier and Chandos Webinar Series

Innovative technologies are changing the way research is performed, preserved, and communicated. In this panel discussion, five experts in the field of librarianship will share their views of the role of the librarian in providing the reliable and impactful tools and guidance to enable successful research and learning outcomes.
Our panel of experts

Science Information Literacy and the Role of the Academic Librarian

Svetla Baykoucheva,
Chemistry and Life Sciences Librarian
University of Maryland College Park

Information Literacy Skills in the Research Process

Hilde Drivenes Daland
Head of section for Teaching and Research services
Agder University Library, Kristiansand, Norway

Kari-Mette Walmann Hidle
Associate professor at Faculty of Social Science
Agder University, Kristiansand, Norway

Critical Thinking and Information Literacy

Anthony Anderson
Senior Teaching Fellow, Department of Psychology
University of Strathclyde, Scotland

Bill Johnston
Honorary Research Fellow, School of Psychological Sciences and Health
University of Strathclyde, Scotland

Read more about our panelists
Science Information Literacy and the Role of Academic Librarians

Svetla Baykoucheva  
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http://lib.guides.umd.edu/chemistryresources
Challenges for academic librarians

• Advances in information retrieval systems/integration of databases
• Increased expectations from higher education
• Assessment of student learning
• Lack of technical skills and subject expertise
• Understanding the culture of the disciplines
• Faculty attitudes
• Demonstrating the benefits of information literacy instruction
Areas of involvement for academic librarians

- Finding and managing scientific information
- Scientific communication
- Bibliographic and project management
- Data literacy/Data management
- Academic impact
- Social networks/Altmetrics
- Marketing the library
- Unique identifiers: ORCID, ResearcherID, Scopus author tools
Scientific communication

• Communication and publication models
• Scientific writing
• Managing citations: EndNote, Mendeley, Zotero
• Communicating through social media
• Scientific misconduct: prior publication, plagiarism, submitting the same article to different journals, data or image falsification or manipulation, authorship ethics, conflict of interest
Data literacy

- Types of research data
- Data curation
- Data preservation, archiving, and storage
- Data standards
- Citing data
- Data management plans
- Data sharing
- Data repositories
- GIS
Managing research data: Electronic Laboratory Notebooks (ELNs)

- Benefits of using ELNs
- Types of ELNs
- Choosing an ELN
- Introducing ELNs in academic institutions
Information literacy program at the University of Maryland College Park

• A science information literacy program was implemented in 32 courses
  - Large (chemistry) courses: 400-850 students
  - Small courses: 20-110 students
• Audiences reached: > 12,000 undergraduate and graduate students
• A LibGuide used in instruction was accessed ~40,000 times in 2016
• A bibliographic management program (EndNote or Zotero) was integrated in the instruction
• Learning outcomes assessment: Graded online assignments; grades were part of the total grade for the course
• High level of learning achieved
• Electronic Laboratory Notebooks (ELNs) (in some courses)
LibGuides

A LibGuide page prepared for each course provides links to resources, assignments, and instructional materials.
Demonstrating the impact of instruction

Usage stats for a LibGuide used in information literacy instruction in chemistry courses at the University of Maryland College Park. Peaks in the usage of the LibGuide and the databases covered in the instruction coincided with the time instruction occurred. In 2016 the LibGuide was accessed ~40,000 times.
Assessment of student learning

An online assignment for a chemistry course with 850 students required students to export references from PubMed to Zotero, create a bibliography, and then copy and paste it in the assignment.
Feedback from students

A question in the online assignments required students to provide feedback about the instruction, the resources, and the assignment.
How academic librarians can remain relevant

• Have a subject expertise
• Acquire new technical skills
• Collaborate with teaching faculty to integrate information literacy instruction in the courses
• Assess student learning by using graded assignments; including the grades in the total grade of the student for the course increases motivation and interest in students
• Incorporate new technologies, data management, measurement of academic impact; scientific writing, and other areas not covered by librarians before in information literacy instruction
• Demonstrate the benefits of information literacy instruction
Additional resources


New roles for research librarians

Kari-Mette Walmann Hidle
Hilde Johannessen
Information Literacy Skills in the Research Process

Information literacy is the ability:

• To transform information into knowledge.
• To pass knowledge on in an ethical manner.
PhD-student – from novice to expert in her field

Three necessary generic skills:
1. Searching.
2. Source evaluation.
3. The ethical use of sources.
How is information literacy relevant to research?

• What is information literacy?

• Information literacy in the research process
The library in the research process

Funding and planning
- Bibliometrics
- Researcher visibility
- Literature review / mapping of the field

Data collection
- Systematical searches
- Database knowledge
- Surveys

Writing
- Source evaluation
- Reference management
- Ethical use of sources
The library in the research process – cont.

**Publishing**
- Academic level of journals and publishers
- Open access

**Marketing**
- Researcher profiles
- Social media
- Networking

**Impact factor**
- Bibliometrics
- H-index
- Citation analysis
Conclusions
Critical Thinking, Information Literacy and Epistemological Development: a Webinar. March 2017

Tony Anderson and Bill Johnston
University of Strathclyde
Glasgow, Scotland
Structure of webinar presentation

1) Psychological constructs: critical thinking, epistemological development and metacognition

2) The Anderson and Johnston (2016) model of information literacy

3) Implications of our model of information literacy for information literacy teaching and learning
Brief definition of critical thinking

• Critical thinking is a kind of reflective skepticism: an active process of analyzing and evaluating information (e.g. observations, communications, experiences) in order to decide what to believe or to do.

• It a habit and a disposition, and not just a set of ‘rules for good thinking’
In what ways is critical thinking helpful in information literacy?

• Perhaps most obviously: we need to use critical thinking to e.g. make quality judgements so that we can select items of information that suit our need.

• But it is more complicated than this, in that:
  - A) we need to critically evaluate the process of information sourcing and searching as well as the products
  - B) critical thinking links to other psychological phenomena, especially epistemology (beliefs about knowledge) and to metacognition (regulation of own thought).
Why is epistemology relevant to critical thinking?

• Epistemological development is the change in a person’s ideas about the nature of knowledge as they e.g. go through a degree program:
  - Initially, dualist (right/wrong) view of knowledge
  - Later, multiplist view (all ideas of equal merit)
  - Most sophisticated: an evaluativist view in which some knowledge seen as better supported by evidence than other items

• These different epistemological positions affect whether critical thinking is even thought to be relevant.

• Therefore, it is necessary to consider critical thinking alongside epistemological development.
Why is metacognition relevant to critical thinking?

• Metacognition is cognition about cognition, or in other words our own conscious control of our thought processes as we go about a task, e.g.:
  - ‘Have I fully understood that paragraph?’
  - ‘Have I examined all points of view here?’
  - ‘Am I being even-handed and unbiased?’ etc.

• Metacognition is absolutely critical to unbiased problem-solving and information-processing, and therefore it is a key component of critical thinking and information literacy.

• To sum up: critical thinking is obviously important to information literacy. However we contend that critical thinking cannot be considered separately from epistemological development and metacognition. All three are intimately interrelated.
Our Information Literacy Model

We developed a model (next slide) of an information-using situation in which a critically thinking, information literate person, interacts with an item of information (which could be a text, a book, a web–page, an image, or any of a range of possible potential information sources).

In our book we discuss this model most fully in relation to academic situations but it is designed to be a general model that applies to a wide range of information literacy situations.
Model of Information Literacy situation from Anderson and Johnston (2016)
What do these insights tell us about information literacy that is new, interesting and useful?

- Offers a step change in approach away from ‘skill-set’ perspectives to describing/teaching information literacy, towards adopting an epistemological development model, which encompasses information literacy.

- Illumination of student cognitive behaviour – current and potential – in relation to knowledge, information and learning.

- Help for teachers improving student learning by highlighting epistemological development.

- Assistance for librarians in their instructional roles and a possible way to use the opportunities of the ACRL Framework for revitalised collaboration with faculty.
Relevance to ACRL framework

- Potential identity between CT/Epistemological development and the Framework (see chapter in press on Searching as Strategic Exploration)
- Information literacy as integral part of epistemological development
- Enhanced understanding of critical thinking creates a strategic tool (e.g. offers specific entry points to ideas like critical thinking/offers a route to enhanced collaboration with faculty beyond the one shot slot) for implementing the ACRL framework
Thank you for your attention

Questions?
Thank you

Thank you for attending the webinar today. We appreciate the time and attention that you gave to our presenters and us.

If you have any questions, topics you would like to hear more on in the future, or need further information, please let me know.

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