

# Q6C: A Multidisciplinary Approach for Teaching Online Research Practices

Katherine Deibel  
Computer Science and Engineering  
University of Washington  
Seattle, WA 98195-2350  
deibel@cs.washington.edu

Sarah Read  
English  
University of Washington  
Seattle, WA 98195-2350  
reads@u.washington.edu

Tim Wright  
History  
University of Washington  
Seattle, WA 98195-2350  
wrighttm@u.washington.edu

## ABSTRACT

Although a computing student is expected to learn how the Internet works, said student also needs to learn how to use the Internet properly as a resource for information. Critical skills for this task include determining both the trustworthiness of online information and whether it is useful for one's purposes. The Q6C Solution (Question, Categorize, Characterize Authorship, Contextualize, Corroborate, Critique Rhetorically, and Conclude) is a heuristic developed through disciplinary collaboration between the arts and sciences to support instructors in designing assignments and activities that foster critical information skills in students. Examples of using Q6C in computing classes are also presented.

## Keywords

Literacy, online research, multidisciplinary, research practice, sourcing, citation, Q6C

## 1. SIGNIFICANCE AND RELEVANCE

Like it or not, the web is usually the first stop for students—regardless of discipline—looking for information for academic or non-academic purposes. To manage the complex mass of information available, students need the skills to determine both the trustworthiness of information and whether it is useful for one's purposes [5, 8]. Despite students' reported confidence with using information technology, their ability to be critical of online sources remains a literacy requiring explicit instruction [4]. While we might assume that computing students are already, natural savvy users of the Internet, there is no evidence for such an assumption nor are there explicit mentions of information literacy skills within the curricula requirements [1].

Expectations that these skills are taught in general education or courses in other disciplines are a problematic assumption as well. A short-term intervention used by instructors across the curriculum has often taken the form of a check list (see [2] for an example) that prompts students to identify superficial characteristics of a site, such as the author and the URL domain. Not only are the checklists internally flawed (e.g., a .org website is more trustworthy as it is reserved for nonprofit organizations), the educational benefits of these superficial checklists is in question. Research has shown [3, 6], however, that the largely rote practice of evaluating sources by check-list does not develop sustainable information literacies or critical practices for doing research that are transferable across contexts, within and beyond academia. A different kind of instruction for evaluative methods is required to develop these new literacies [7].

An important point of critical information skills is that they are simultaneously general and disciplinary specific. The need to approach information critically and to determine its trustworthiness and usefulness is useful in all venues of life. Within a discipline, however, the qualities of good information will differ from the qualities in other disciplines [5]. For example, the year of the information is valuable in both history and computer science. In history, however, the year is valued because it provides a context in which to interpret the information, but in computer science, year is valued as a measure of recency and saliency.

### Question

- Maintain a skeptical frame of mind.
- Ask questions about a source you are considering for *your* research.

### Categorize

- Is this a primary, secondary or tertiary source in the context of *your* research?
- What type of site is it (blog, wiki, database, website, etc.)?

### Character Authorship

- Identify who created the content. Single or multiple authors? Committee? Institution? Community? Critic? Expert? Anonymous

### Contextualize

- Place the information collected in conversation with *your* existing experience and body of knowledge.
- Does it fit? How?

### Critique Rhetorically

- What do the authors' choice of words, tone, font, display format, images, genre, and argumentative strategies tell you about the intended audience and the credibility and reliability of this site?

### Corroborate

- Assess how the content compares to other sources. Is it consistent, complementary, or contradictory?

### Conclude

- Is the source credible *and* useful for *your* research?

Figure 1. Details of the Q6C Solution.

With the goal of recognizing the need for addressing both the general and discipline specific aspects of critical information practices, a collaboration between instructors from three disciplines, History, English and Computer Science, sought to develop an instructional tool applicable across the curriculum for teaching online research practices. The Q6C Solution (see Figure 1 for details) is a heuristic for designing assignments and class activities that increase student investment by maintaining authenticity, scaffold the research process, and move students to the meta-cognitive level to ensure the transfer of practices across domains.

Example assignments and activities based on Q6C have been developed for several disciplines, including computer science. An example of a possible usage of Q6C is as follows:

#### *Software Engineering*

For a large software development project, evaluate and choose a third-party software kit (SDK) to handle the online database front-end for your product.

You need to check that the software will be compatible and meet the project's requirements. Additionally, you should consider issues of developer support, user communities, and customer opinions of the software.

To this date, Q6C has been implemented in several classrooms, though not yet in a computing course. As such, partnerships and collaborations across the university are needed to continue deploying and refining this process in real learning environments.

## **2. Content of Poster**

The poster will provide an overview of the Q6C process and brief descriptions of applications of its use in the classroom. Examples of how to use Q6C in computing courses will be a major component of the poster as one of the goals of this poster is to attract partnerships for further development of the Q6C approach. Handouts of this poster, this text, and other Q6C documents will also be made available.

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