# Helping students to learn how to critically evaluate a source: how effective are the tools we use?

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#### Presentation abstract

What does evaluating a source involve? What aspects of the source are being evaluated? On what basis do we determine a source's strengths and weaknesses? And how do we explain this to students who are learning the basics of critical analysis?

The Study Advice team at the University of Reading recently developed a new online guide introducing students to critical analysis. The guide includes a selection of exercises and visual and mnemonic tools that cover the basics of critical analysis, including Bloom's Taxonomy (Anderson and Krathwohl, 2001), the Seven Pillars of Information Literacy (SCONUL, 2011), C.R.A.A.P. (Blakeslee, 2004), B.E.A.M. (Bizup, 2008), and the University of Plymouth's (2006) Model to Generate Critical Thinking, along with a new resource called S.P.E.A.R. that focuses on how to analyse and evaluate an individual source. We developed the latter after noticing in one-to-one appointments that students appeared to find this aspect of critical analysis particularly difficult to understand. Moreover, we felt that existing tools like C.R.A.A.P. and the Seven Pillars did not provide enough clarification of how to identify a source's strengths and weaknesses.

In this workshop, participants will consider how well these tools work in helping students understand how to evaluate a source's analysis and, by extension, its claims. This process can differ significantly across the disciplines. As such, we will also explore how to better capture the full breadth of critical analysis at degree level, without overwhelming students who are new to the concept with its full complexities.

**Keywords:** critical thinking; evaluating a source; learning resources; generic support.

## Community response

This lively workshop provided participants with the opportunity to engage with multiple models and frameworks that conceptualise and introduce critical thinking for students:

It was beneficial to see different institutional approaches to developing critical thinking resources. It could be perceived as challenging to define the concept of critical thinking (Thonney and Montgomery, 2019), and this was one of the areas which the session addressed. All participants were encouraged to discuss what they believed critical thinking is in relation to source evaluation.

I really enjoyed this session. To some extent, it was like visiting old friends. Perhaps a good demonstration of how reliant we are on a handful of models.

The first group activity gave participants the opportunity to discuss critical thinking in a disciplinary context (see Figure 1).

Figure 1. Group discussion (presenter slide).

# Group discussion



- On your tables, you will find a discipline
- What does critical thinking mean in this discipline?
- How much of the points we've identified apply to this discipline?
- Does critical thinking involve anything unique to this discipline?



This led to many interesting discussions around the understanding of critical thinking within the context of the provided disciplines:

Discussing the matter of source evaluation through the perspective of professionals with different academic backgrounds inspired some diversified conversations around the differences between disciplines and the way they deliver and manage source evaluation.

Particularly intriguing was the perspective raised by the history-based courses, which recognised that some of the traditional source evaluation strategies taught in learning development sessions, were not necessarily useful in their area of study. They gave the example that a single diary entry could be considered significant in a historical context, which could go against some of the principles taught by models such as CRAAP or BEAM (see Figures 2 and 3). Similar conversations were shared in relation to education and social studies courses, where small case studies were often considered as a reliable source which may not be the same in other science-based courses. The workshop allowed the opportunity to question some of the traditional methods applied when introducing source evaluation and critical thinking to students and encouraged further discussion around their validity and reliability when applied across a wide range of programmes.

I found these discussions very enlightening. As a learning developer with a scientific background, I tend to focus on supporting STEM faculties. It was interesting to hear how arts and social science Learning Developers have a very different perspective of critical evaluation. I particularly liked the detail in the (three domains of) critical reading matrix. I often use the analogy or a template of a reading matrix to help students to understand the concept of literature review. I will certainly use and adapt this matrix, to help support my students in the future.

Many participants found the discussion helpful for their own practice. This was nicely captured by one member of the community who added:

Prior to this session, I relied on Bloom's taxonomy (revised) to explain critical thinking to students. The presentation of the further models BEAM and SPEAR are

immensely valuable, and I plan to use them in future sessions. The three models link to three phases of critical thinking. CRAAP - critically selecting sources, BEAM contextualising and synthesizing resources and SPEAR as a framework for presenting sources. I plan to use the information from this session to rework sessions on working with evidence for pre-registration nurses at Levels 4-6 (inclusive). If I get anything useful or interesting, I will share the results.

There were also interesting reflections on how Learning Developers may need to engage with critical thinking in the future, especially within the context of new technologies like Artificial Intelligence (AI) which have the potential to really reframe the way in which students, academics and Learning Developers alike need to approach sources of information in a critical way.

There is, however, a need for a critical re-evaluation of most of these models, especially considering the massification of misinformation, 'fake news' and Generative AI tools. I think many of our approaches are simply not fit for purpose in the modern information era. For example, there has been some discussion around the suitability of the CRAPP test (Fielding, 2019), given the propagation of fake news. I've started to use Caulfield's SIFT approach in its place (see Butler et al., 2023).

Figure 2. S.P.E.A.R and B.E.A.M. (see University of Reading, 2023).

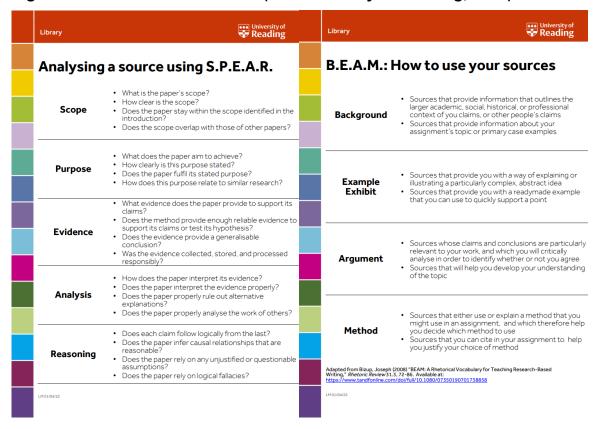


Figure 3. C.R.A.A.P and Critical Thinking handouts (see: University of Reading, 2023; University of Plymouth, 2006).

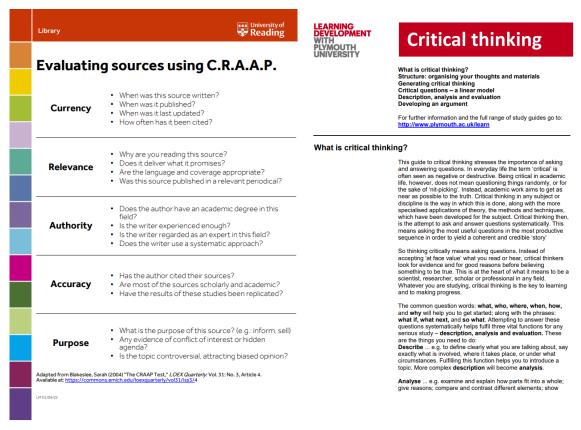


Figure 4. Three domains of critical thinking (see Webster, 2019)

|  | Validity: On its own terms  | Synthesis: In relation to others  | Relevance: Usefulness to you  |
|--|---|---|---|
| Context: discipline/profession,<br>authors, currency, bias       | Where was it published? What profession or discipline are the authors? What profession or discipline are the authors? What else have they published – are they authoritative? Are there any vested interests which might bias research? | Have others cited or drawn on this research?     How influential has it been?     Is it cutting edge/controversial or mainstream?     Is this part of a debate and where does it sit? | Are these authors coming at the issue from the same discipline perspective as you?     What is your overall response to the article?  |
| What are they doing? Research<br>Question/Aims/Hypothesis        | Are the aims clearly stated? Are they vague?     Is the research question etc valid or rest on bias/assumptions?     Is the question interesting/significant?   | Is this a radically new area of research or a tweak or new angle on existing question or topic?     How long have people been interested in this topic?                               | How similar are their aims to your own? How does that affect your use of it?     Is it still worth me doing my research?  |
| <b>How did they do it?</b> Methods,<br>Models and Materials      | Are any theories/models appropriate and accurately understood?     Do they develop their own?     Are the methods used for data gathering/interpretation appropriate?     is the data set well chosen?                                  | Are they developing a completely new method etc?     Are the methods etc used standard and acceptable practice?     Are they adapting or improving on previous methods etc?           | Does this help me justify my own choice of approach?     Can I adapt or improve their method?     Do I agree that this is an appropriate method for research like mine?   |
| <b>How do they know?</b> Argument, evidence, logic and reasoning | Is their interpretation and analysis flawed or does it make logical sense?     Have they missed anything?     Do the results actually mean what they say they mean?   | Do they use other literature appropriately to help interpret their findings?     Do later scholars criticise them?  | Is there anything I should be watching out for when reading my<br>own work critically?     Is there anything I can point to in order to save me having to<br>explain it in full?                                      |
| What do they say? Findings and conclusions                       | Are the conclusions actually related to their aims and results?     Are the conclusions drawn proportionate to the evidence presented?  | Are their findings confirmed by other literature?     Are their findings significant and novel, compared to other literature?   | Can I rely on their conclusions to build my own argument?     Do I disagree with their conclusions to some extent? Does that help justify my research?     Any gaps/missed opportunities to help justify my research? |

 $Helen\ Webster\ (University\ of\ Newcastle)-https://www.learnhigher.ac.uk/the-three-domains-of-critical-reading/normalises and the second of the second of$ 

#### Editorial comment

We think the authors set out interesting questions in their abstract:

- What does evaluating a source involve?
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- How do we explain this to students who are learning the basics of critical analysis?

While some of these questions are fundamental parts of academic practices, the range of ways in which these practices are framed and communicated shows their complexity. The broad range of approaches is no surprise given the complicated situatedness of academic literacies (Lea and Street, 1998, 2006), and participants teased out some of the disciplinary differences in how the concept of criticality is approached. Moreover, this session afforded the community an opportunity to look at how critical thinking is framed to

students within the context of Learning Development. This session brought together many of the common frameworks and models used to introduce critical reading and thinking to students. As you can see from the community response above, it led to an interesting and productive discussion in the room.

#### Authors' reflection

This workshop enabled us to receive valuable feedback on our new <u>Critical Analysis</u> <u>LibGuide</u> (University of Reading, 2023). The LibGuide is available to all students at the University of Reading, and thus is designed to apply across a broad range of disciplines. As a result, the guidance and resources give an overview of the basics of critical analysis, boiling down its complexities and cross-disciplinary variances to something easy to remember: a mnemonic device like C.R.A.A.P. or B.E.A.M., or the neatness of the Three Domains of Critical Thinking. (We also included a new resource – S.P.E.A.R. – that breaks down how to critically evaluate the strengths and weaknesses of an academic source.) Accompanying these resources are several exercises prompting students to consider how these general principles apply in their disciplines.

Much of the discussion in the workshop focused on how to relate these resources to our students' subjects, and by extension how critical analysis differs between those subjects. It was interesting to hear participants sharing the ways in which they have adapted the resources to the specific practices of several disciplines. This in turn raised the debate around the value of generic support when it comes to critical thinking. We would conclude that while there is a clear need to discuss critical thinking within a disciplinary context, there is a space and requirement for generic tools to support students with this deeper thinking. And while it did appear that many of the tools we have are still relevant today, questions have been raised about whether they are sufficient for the future, particularly with the increasing use of AI.

We are glad that many participants in the workshop gained new insights into how to explain critical analysis to students. The session provided us with interesting ideas as to how to use these resources across the disciplines, and we look forward to discovering other interesting approaches to teaching this topic.

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The authors did not use generative AI technologies in the creation of this manuscript.

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