

Module 07 Lesson 03

Custom Interaction: Media Checklist

Transcript

Overall: This is a way for users to learn more information about the list of 6 items in this Interactive Checklist. Users will click each item to see more text.

Actions for Interactive Checklist:

- Each of the 6 rows will be clickable by the user.
- Upon clicking one of them, the appropriate content (text) will appear.
- The 'window' of content that appears will need a 'close' button so that the user can close the content area and get back to view the interactive checklist.

[Visual:

1. *Source (checkbox: credible; checkbox: non-credible)*
2. *Claim (checkbox: reputable; checkbox: non-reputable)*
3. *Personnel*
 - *scientists (checkbox: credible; checkbox: non-credible)*
 - *funders (checkbox: credible; checkbox: non-credible)*
 - *reporter (checkbox: credible; checkbox: non-credible)*
4. *Evidence*
 - *hypothesis (checkbox: stated; checkbox: not stated)*
 - *sample size (checkbox: adequate; checkbox: inadequate)*
 - *controls (checkbox: present/suitable; checkbox: absent/unsuitable)*
 - *graphs (checkbox: suitable/correct; checkbox: unsuitable/incorrect)*
 - *statistics (checkbox: used/suitable; checkbox: not used/unsuitable)*
5. *Point of view (checkbox: balanced; checkbox: unbalanced)*
6. *Scientific community (checkbox: consensus; checkbox: opposed)]*

Below are the appropriate content areas for each of the 6 rows of the Interactive Checklist.

1. Source:

[Visual: *several magazines grouped together*]

With so many media outlets in the modern world – be it television, radio, Internet, newspaper, magazine – it is important to scrutinize the media source before believing or refuting what is said. Is it a sensational article in People, a website, a report from the New York Times, or a feature in a science publication aimed at the general public like TIME?

Each of these sources will provide you with a different level of information - and probably, a different level of reliability depending on whether they employ science writers (people with a science background who can read and summarize the primary scientific literature) or not. In any case, check to see if the report is using a peer-reviewed scientific study and if so are the scientists, institutions, and journal stated.

Clearly gossip magazines are good to find out about Brangelina, Jen, and Brittany, but not so good to trust on science and health reports. The New York Times and BBC News are probably more scientifically credible than The Centre Daily Times and FOX News. Also, anybody can create and publish a website, so government and/or professional organization

websites generally are more credible than personal web spaces. It is also a good idea to check that a website contains updated current information by looking for the Last Updated date at the bottom of the page.

Finally, it is worthwhile assessing the agenda of the media outlet as they can have hidden and/or unbalanced agendas depending on their funding and target audience. For example an article that appears in a religious magazine that damns stem cell research should be interpreted knowing that the emotional factor highly outweighs the scientific agenda.

2. Claim:

The first step toward weighing a scientific claim is to establish what it is, as well as what it isn't. In doing so you may need to read between the lines and decide where it sits on the spectrum of possibilities. As a general rule of thumb, a reputable source generally acknowledges missing pieces of the puzzle, or areas where more research is needed, whereas non-reputable sources often hide information to support their claim/argument.

Confusion and/or mis-reporting often originates when correlation and causation are used. Correlation is when two things change together (e.g. both ice-cream sales and beer sales may increase as temperatures warm), whereas Causation is a direct cause-and-effect relationship between two things. Causation requires a greater burden of proof than correlation, mainly because it requires ruling out all other possible causes. So even though ice-cream and beer sales increase as temperatures warm, it does not mean that eating ice-cream causes people to drink beer. Watch out for this when reading.

3. Personnel:

Scientists

Just because somebody has a PhD or call himself or herself a scientist does not mean that they are good or credible. It is therefore a good idea to check the scientist(s) reputation and that of their institution(s). This can be easily achieved by a simple Google search. The institutional affiliation can also heavily weigh on the outcome of the research. Government or University scientists are normally considered to be independent when compared to industry or advocacy group affiliated scientists. For example, a scientist that is backed by a mining company may well make a stand dismissing any negative effects of the mining operations on the environment, whereas a university scientist may conclude either way depending on the data.

Funders

A good report often acknowledges the funding source of the scientific research, which gives an open level of objectivity. If the funding is from a government source (such as the National Science Foundation) then bias in the reported results may well be less than a study that is funded by an industry or advocacy group. A good example of this is the well-publicized climate change skeptic Prof. Fred Singer who has admitted under oath to taking money from oil companies, such as Exxon, Texaco, Arco, Shell and the American Gas Association. So, if you read that six cups of coffee a day was good for, would you believe it if the research was funded by a coffee company?

Reporters

Much like scientists, the credibility of the reporters is dependent on who they work for, their reputation and previous published works, as well as the funders behind any given story. If you are unsure, it is often a good idea to Google the reporter to see what other reports they have written, which often helps you assess their allegiances and agendas.

4. Evidence:

Your newfound knowledge and experience with the scientific method and the process of science is your key to success here.

Hypothesis

Ask yourself whether a hypothesis is stated and if so is it correct. If no hypothesis is stated, can you figure out what the hypothesis may be based on the research question or claim. Accepted hypotheses generally get more exposure in the media, even though rejected hypotheses are equally as important in driving scientific knowledge. Remember all good science starts with a hypothesis.

Sample size

Remembering that science generally uses a sample (subset) of the population to test the hypotheses, and the bigger the sample size the more confidence you will have in obtaining a sample mean that best approximates the population mean. Is the sample size information provided, and if so do you think the numbers are sufficient to support the conclusions?

Controls

If an experiment was carried out, were controls used? And if so do you think that the controls were sufficient to support the conclusions? Not all studies would require the use of controls so bear that in mind when assessing the sample design.

Graphs

If graphs are presented, are they a suitable representation of the results? And are all the appropriate axis labeled appropriately, is there a figure legend, and is the scale appropriate?

Statistics

Inferential statistics are needed to test hypotheses. Are statistics used and reported, and if so are the appropriate to test the hypotheses and support the conclusions. The results are often summarized as percentages or simple numbers in media reports but if the source is from a scientific journal article then you can be fairly certain that statistics were used.

5. Point of view:

Balanced reporting is generally considered good journalism. You should be able to get information on all sides of an issue, however, not all sides of the issue necessarily deserve equal weight. Science works by carefully examining the evidence supporting different hypotheses and building on those that have the most support. Reporting that omit viewpoints or who deliberately (falsely) grant all viewpoints the same scientific legitimacy effectively undo the main aim of science of weighing the evidence. If you would like more information, a Google search can once again uncover other articles on the same topic as way to find a second or third opinion. So it is a good idea to ask yourself whether the full story is presented? Are there any other alternative explanations that are not presented?

6. Scientific community:

All scientific ideas are inherently provisional, meaning that science is always willing to revise these ideas if warranted by new evidence. When reading any story, ask yourself or Google for more information to determine whether you think that the conclusions given represent the broader view of the scientific community. Once again some of the issues above will weigh heavily on this – i.e. institutional and funding affiliations.