Critical thinking in Global Challenges
Week2
'Assessing Evidence: Credibility and Relevance'

Hello and welcome to Week 2 of Critical Thinking in Global Challenges.
Last week you learned about some essential concepts in critical thinking. Mayank presented how arguments and scientific theories are built and how they rely on the strength of the supporting evidence.
You saw that the evidence is key to validating or refuting theories.
and you saw that to be able to evaluate whether a theory is correct you need to look carefully at the evidence given.
This week we will expand on the concept of evidence.
The learning objectives of this week are to better understand where information comes from and to learn how to evaluate the credibility and the relevance of the evidence given to support arguments.

Evidence is information that provides the basis for a point of view.
As presented last week by Mayank:
Evidence can be facts, experimental results or observations from nature.
To support an argument, Evidence should be Reliable and Valid.
Reliable observations or results should be objective, not subjective. Reliable data, are data you can trust, data that are repeatable. If someone does the same experiment he/she should get the same results. But of course, sometimes it is not possible to repeat an observation or experiment, for many reasons.

So how can you evaluate evidence if you can't redo the experiment? How to judge whether to trust the evidence or not ?
The first step is to assess the authorship and the nature of the source of the evidence and ask yourself:
Who says so? Is it a person with knowledge, expertise and authority in the field? Or is it a journalist writing for the popular press? Or is it maybe your neighbour, who has heard something on the radio?
If the evidence comes from a person with authority in the field, are his views shared with other experts in the field? Or is it a single person's point of view?

You should also ask: Where is the information coming from? Is it an academic journal, or a company website, or a personal blog? Is it possible that the authors have motivations that favour one point of view, for example to sell a product or publicise a book?

Evidence can be divided into 2 categories:
Primary sources and secondary sources.
Primary sources are original materials or the source where the ideas and evidence were first communicated.
Secondary resources are sources that re-use information from primary sources
Secondary sources are usually less reliable than primary resources, because the information might be misinterpreted when reported later, or placed in a different context, and so they might be less consistent with the original evidence.

Some examples of reliable resources are for instance Peer reviewed journals], where all the published information has been reviewed and criticised by other experts in the field before the information is published. However, even peer reviewed journals cannot guarantee 100% reliability, because they might tend to support points of view which are well-established, and evidence for new ideas or different viewpoints can be overlooked.

Information from websites, blogs and also newspaper or magazine articles should be treated with caution, as this is much less likely to have been peer reviewed. You should ask yourself, are there comments on the website and if so what is the quality of the comments? Do they agree or disagree? What might be the motivations of the authors, and the people making the comments?

When evaluating evidence in a written piece of text such as in articles or books, you will be able to find a reference for each given source of evidence.

References might be given in the text as (Author, year) or as (number) like in this example References will give you all the details you need to find the source of the information, and thus you will be able to assess the credibility of the source.
When looking at references, ask yourself whether the source is a primary or secondary source. Is the evidence coming from a peer reviewed article or is it coming from an opinion piece in a news article?

In addition to being reliable, evidence must also be valid.

It should be accurate and relevant to the argument or the theory it is supposed to support. To assess the validity of the evidence, you need to evaluate the information and its analysis: how the evidence has been interpreted.

You should ask, is the evidence accurate? Is the evidence relevant or out of context? Is the evidence a representative example?
Let's look at simple arguments supported by simple evidence
Here the argument is 'France is a rainy country. My aunt in Paris says it rains 360 days of the year. All the supermarkets sell umbrellas! I visited my aunt last year and it rained the entire weekend I was there.'
Let's take this in steps. In the first instance the evidence given to support the argument is inaccurate, it almost certainly doesn't rain 360 days per year – if you were to look at accurate records of rainfall in France over the past 100 years, the average value is about 100 days per year.
In the second instance, the evidence 'all supermarket sell umbrellas' is irrelevant to the argument. Supermarkets would sell umbrellas regardless of how rainy it was in France.
And finally, 'I visited my auntie last year and it rained for the whole weekend' this evidence is not representative to support the argument.

The fact that it rained in 1 city for 2 days is not representative of the whole country during the full year.

In summary, to evaluate the credibility and relevance of evidence, you should look at whether the evidence is reliable by looking at its nature (objective fact or subjective opinion), the author (an expert in the field or Joe), and whether the information comes from a primary source or a secondary one.
You should also evaluate how accurate and relevant the evidence is. is the evidence taken out of context and is it relevant to the topic?
By looking at all these parameters, you will be able to conclude whether the evidence is credible and relevant to the argument.

Make sure to look at all parameters not just at one. For instance do not just consider who says so, remember just because an expert in a field says something, that it's necessarily correct! As seen last week, all theories are subject to revision and change with new information.

This week we've covered how to evaluate evidence by assessing its relevance and credibility. Now, make sure to do the exercises to review and put in practice what was learned this week.
In this week exercises you will practice identifying reliable resources and you will practice assessing evidence using all the parameters presented today.
So good luck, I hope you'll enjoy doing the exercises,
And see you next week!