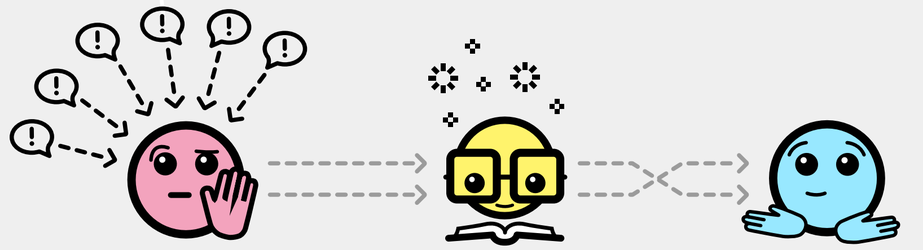
That's a claim!

Key Concepts for thinking critically about environmental claims



BEWARE
Too good to be true
"100% safe!"
Interventions intended to benefit may also be harmful to the environment.

BEWARE
Too good to be true
"100% certain!"
We can rarely, if ever, be 100% certain about the effects of interventions.

BEWARE
Too good to be true
"100% effective!"
Most claims that an intervention always works turn out to be wrong.

BEWARE
Faulty logic
"Associated with!"
A change in environment may be associated with an action but that does not mean it is caused by the action.

BEWARE
Faulty logic
"Lots of data!"
More data is not necessarily better data, whatever the source.

BEWARE
Faulty logic
"It works like this!"
Interventions that should work in theory often do not work in practice.

BEWARE
Faulty logic
"A study shows!"
If a single intervention comparison (study) shows that it has a good or bad effect it does not mean that is the final answer.

BEWARE
Faulty logic
"Old is better!"
Widely practiced interventions that have been used for a long time are not necessarily beneficial or safe.

BEWARE
Faulty logic
"New is better!"
Just because an intervention is new, expensive, technologically impressive, or brand-named does not mean that it is better or safer than other interventions.

BEWARE
Faulty logic
"More is better!"
Increasing the amount or intensity of an Intervention does not necessarily increase the benefits and may cause environmental harm.

BEWARE
Faulty logic
"No comparison needed!"
Unless an intervention is compared to something else, it is not possible to know what would happen without it.

BEWARE
Trust alone
"It worked for me!"
Personal experiences or anecdotes (stories) are an unreliable basis for assessing the environmental impacts of most actions.

BEWARE
Trust alone
"As advertised!"
Conflicting interests may result in misleading claims about the effects of interventions. Someone with an interest in getting people to use an intervention, such as making money, may overstate benefits and ignore possible harmful effects.

BEWARE
Trust alone
"Recommended by experts!"
Just because a claim is made by an expert or authority, you cannot be sure that it is trustworthy.

BEWARE
Trust alone
"Peer reviewed!"
Peer-reviewed and published studies may not provide reliable estimates of effect.

THINK 'FAIR'
Unfair comparison
Dissimilar comparison groups
Look out for intervention comparisons where the comparison groups were not alike. Comparison groups need to be similar at the beginning of a comparison.

THINK 'FAIR'
Unfair comparison
Dissimilar treatment of comparison groups
Look out for intervention comparisons where the groups were treated differently. Comparison groups should be treated equally.

THINK 'FAIR'
Unfair comparison
Dissimilar expectations
Look out for intervention comparisons where people knew which intervention they received and knowing that could have changed how they felt or behaved.

THINK 'FAIR'
Unfair comparison
Dissimilar measurement
Look out for intervention comparisons where what happened was measured differently in the comparison groups. Impacts should be assessed similarly.

THINK 'FAIR'
Unfair comparison
Lots of missing subjects
Look out for intervention comparisons where what happened was not measured in all of the original subjects. All subjects should be followed up.

THINK 'FAIR'
Unfair comparison
Outcomes counted in the wrong group
Look out for intervention comparisons where subject's outcomes were not counted in the group to which they were assigned. Subjects' outcomes should be analysed in their original groups.

THINK 'FAIR'
Unfair comparison
Indirect comparisons
Look out for comparisons of interventions between studies that are different.

THINK 'FAIR'
Unfair comparison
Unreliable assessment of outcomes
Look out for outcomes that were not assessed reliably in intervention comparisons.

THINK 'FAIR'
Misleading description
Relative effects
Look out for study results that are described as relative effects. Relative effects of interventions alone can be misleading.

THINK 'FAIR'
Misleading description
Average effects
Look out for intervention effects that are described as average differences. Average measures of effects can be misleading.

THINK 'FAIR'
Unreliable summary
Selective reporting
Look out for unpublished results of fair comparisons. All results of studies should be reported otherwise estimates of effect of interventions may be biased.

THINK 'FAIR'
Unreliable summary
Unsystematic review
Look out for reviews or summaries of multiple studies comparing interventions that were not done systematically. Reviews of fair comparisons should be systematic.

THINK 'FAIR'
Unreliable summary
Unfounded assumptions
Look out for intervention comparisons that are sensitive to assumptions that are made.

THINK 'FAIR'
Misleading description
Subgroup analyses
Look out for results that are reported for selected subgroups within a study or systematic review. Subgroup analyses may be misleading.

THINK 'FAIR'
Misleading description
Few subjects or events
Look out for intervention effects that are based on small studies with few people.Fair comparisons with few subjects or effect measures can be misleading.

THINK 'FAIR'
Misleading description
Statistically significant
Look out for results that are reported as "statistically significant" or "not statistically significant". Don't confuse "statistical significance" with "importance".

THINK 'FAIR'
Misleading description
No evidence
Look out for a "lack of evidence" being described as evidence of "no difference" in effect.

THINK 'FAIR'
Misleading description
No confidence interval
Look out for results that are reported using p-values instead of confidence intervals. Confidence intervals should be reported.

TAKE CARE
Right problem and options
What is your problem and what are your options?
When you are thinking about choices for intervention, make sure that you understand what the environmental problem is and what your choices are.

TAKE CARE
Relevant evidence
What outcomes matter to you?
Always ask yourself whether the outcomes measured in evidence sources matter to you and/or to your environmental goals.

TAKE CARE
Relevant evidence
Are the interventions different from those available to you?
Always ask yourself if the intervention is relevant or practical in your setting.

TAKE CARE
Relevant evidence
Are the subjects very different?
Always ask yourself if your subjects are very different from the subjects studied.

TAKE CARE
Relevant evidence
Are the circumstances different from yours?
Always ask yourself if fair comparisons of interventions were conducted in circumstances that are relevant.

TAKE CARE
Advantages and disadvantages
Do the advantages outweigh the disadvantages for you?
Always ask yourself whether the possible advantages of an intervention outweigh the disadvantages of the treatment.

TAKE CARE
Advantages and disadvantages
How sure are you?
Always ask yourself how sure you are that the possible advantages of an intervention are better than the possible disadvantages.

BEWARE of claims that have an untrustworthy basis

Many claims about the effects of interventions are not trustworthy. Often this is because the reason (the basis) for the claim is not trustworthy.

You should be careful when you hear claims that are:

- Too good to be true
- Based on faulty logic
- Based on trust alone

THINK 'FAIR' - and check the evidence from treatment comparisons

Evidence from comparisons of interventions can fool you. You should think carefully about the evidence that is used to support claims about the effects of interventions.

Look out for:

- Unfair comparisons of interventions
- Unreliable summaries of comparisons
- How treatment effects are described

TAKE CARE - and make good choices

Good choices depend on thinking carefully about what to do.

Think carefully about:

- What your problem is and what your options are
- Whether the evidence is relevant to your problem and options
- Whether the advantages outweigh the disadvantages

Introduction

What should you do to reduce your carbon footprint? You may hear or read many suggested actions but which will be effective? The suggestions will come from many sources such as friends and family, government, business or social media. But how can you tell which claims are trustworthy? There are lots of claims like this about what is good for our environment. A claim is something someone or some group says that can be right or wrong.

An **intervention** is something you do to address a problem or challenge and improve the environment - for example, tackling pollution, conserving habitats, or reducing your carbon emissions. An intervention **effect** is something that the intervention makes happen - like reducing pollution, increasing numbers of an endangered species or reducing your carbon footprint.

People make lots of claims about intervention effects. How can we tell which claims are right or wrong? To do this, you need to look at what supports their claim - its **basis**. For example, someone's personal experience is not a good basis for a claim about what is good for the environment. This is because we don't know what would have happened if that person had done something else.

To know if an intervention (like changing from driving to cycling to school or work) causes an effect (e.g. reducing carbon emissions) and by how much, the intervention has to be **compared** to something else (like continuing driving in a car). That way we can see what would happen if people did something else. Researchers compare an intervention in one target group with something else (or nothing) in another target group. Those comparisons provide **evidence** - facts to support a conclusion about whether a claim about intervention effects is right or wrong. For those comparisons to be **fair**, the only important difference between the groups should be the intervention.

www.thatsaclaim.org/environmental/

Environment - English

Informed Choices Network