Reading journal articles critically

# Why should I read critically?

Journal articles are generally accepted as the best place to go for up-to-date research. You can expect to find the presentation of all the latest evidence, which will be consistently reviewed and updated. Almost all journals make sure that the articles they publish go through a peer review process beforehand.

**Tip:** You can learn more about [peer review from a writer’s perspective in this resource](https://www.escholar.manchester.ac.uk/learning-objects/mre/peer-review/).

So surely, if an article has been reviewed, then we can assume it is reliable and suitable for inclusion in our writing? Unfortunately, the answer to this question is not always straightforward. You don’t have to look far to find many criticisms of the [academic publishing industry](https://ejournals.bc.edu/index.php/ihe/article/view/10767) and the associated [peer review process**.**](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1420798/)

## Activity:

1. **Read the abstract of the following article ‘**[**Chocolate with high Cocoa content as a weight-loss accelerator**](https://www.researchgate.net/publication/276892317_Chocolate_with_high_Cocoa_content_as_a_weight-loss_accelerator)**’.**

“Although the focus of scientific studies on the beneficial properties of chocolate with a high cocoa content has increased in recent years, studies determining its importance for weight regulation, in particular within the context of a controlled dietary measure, have rarely been conducted. Methodology: In a study consisting of several weeks, we divided men and women between the ages of 19-67 into three groups. One group was instructed to keep a low-carb diet and to consume an additional daily serving of 42 grams of chocolate with 81% cocoa content (chocolate group). Another group was instructed to follow the same low-carb diet as the chocolate group, but without the chocolate intervention (low-carb group). In addition, we asked a third group to eat at their own discretion, with unrestricted choice of food. At the beginning of the study, all participants received extensive medical advice and were thoroughly briefed on their respective diet. At the beginning and the end of the study, each participant gave a blood sample. Their weight, BMI, and waist-to-hip ratio were determined and noted. In addition to that, we evaluated the Giessen Subjective Complaints List. During the study, participants were encouraged to weigh themselves on a daily basis, assess the quality of their sleep as well as their mental state, and to use urine test strips. Result: Subjects of the chocolate intervention group experienced the easiest and most successful weight loss. Even though the measurable effect of this diet occurred with a delay, the weight reduction of this group exceeded the results of the low-carb group by 10% after only three weeks (p = 0.04). While the weight cycling effect already occurred after a few weeks in the low-carb group, with resulting weight gain in the last fifth of the observation period, the chocolate group experienced a steady increase in weight loss. This is confirmed by the evaluation of the ketone reduction. Initially, ketone reduction was much lower in the chocolate group than in the low-carb peer group, but after a few weeks, the situation changed. The low-carb group had a lower ketone reduction than in the previous period, they reduced 145 mg/dl less ketones, whereas the chocolate group had an average reduction of an additional 145mg/dl. Effects were similarly favorable concerning cholesterol levels, triglyceride levels, and LDL cholesterol levels of the chocolate group. Moreover, the subjects of the chocolate group found a significant improvement in their well-being (physically and mentally). The controlled improvement compared to the results of the low-carb group was highly significant (p<0.001). Conclusion: Consumption of chocolate with a high cocoa content can significantly increase the success of weight-loss diets. The weightloss effect of this diet occurs with a certain delay. Long-term weight loss, however, seems to occur easier and more successfully by adding chocolate. The effect of the chocolate, the so-called "weight loss turbo," seems to go hand in hand with personal well-being, which was significantly higher than in the control groups.”

1. **Write down any questions you might have for the author of the article.**

The article given provides an extreme example of biased or poorly evidenced published material. The author(s) deliberately wrote this piece to [highlight their frustrations with the diet science industry](https://io9.gizmodo.com/i-fooled-millions-into-thinking-chocolate-helps-weight-1707251800), and the associated publishing and reporting processes.

However, it does provide us with a cautionary tale and a valid reason to ensure that we **apply a critical approach to whatever we read**. As the authors themselves so candidly state:

“Here’s a dirty little science secret: If you measure a large number of things about a small number of people, you are almost guaranteed to get a ‘statistically significant’ result.”

Reference: Bohannon, Johannes & Koch, Diana & Homm, Peter & Driehaus, Alexander. (2015). Chocolate with high Cocoa content as a weight-loss accelerator. International Archives of Medicine. 8. 10.3823/1654.

The good news is that there are number of simple steps you can take to ensure that you are reading critically and asking the right questions of the journals you read. You probably experience this phenomenon naturally whenever you are scanning articles which you might potentially include in your work. A common feeling you may often experience is “This is almost perfect… **but**”

The ‘**but’** is very important here. The good news is you are actually being critical at this point! What can be difficult is turning the ‘**but’** into a reasoned piece of analysis. This post will help you to express these feelings in a more constructive way and enhance the way you engage with and write about these publications.

## What does ‘being critical’ mean?

The skill of being critical is often confused with, or misinterpreted as, the act of criticising a particular article or theory. The difference is that criticism implies a form of judgement, this should be avoided.

Being critical is about analysing the writing and evidence, and then forming your own conclusions informed by your research. In many academic subjects, it is unrealistic to expect a “right” or “wrong” answer. What you will read is a presentation of certain positions or points of view on a particular problem or issue. When reading critically, it is important that you assess the pros and cons of everything you read and look out for both the good and problematic elements.

For example, you might read some valuable research, only to realise that the small sample size studied makes the findings less significant. You can (and should) hold onto what is valuable, but also think carefully about any problems, no matter how inconvenient these may be for the conclusions you ultimately wish to write.

In real life, we practise these skills all the time when reading fiction, or watching a film, or assessing our favourite sports team’s performance. Reading film or book reviews can give you a good insight into the processes needed to take a critical stance when evaluating a piece of work. In this [New York Times review](https://www.nytimes.com/2019/09/19/movies/ad-astra-review-brad-pitt.html) of the 2019 film, [Ad Astra](https://www.imdb.com/title/tt2935510/), the writer praises the film’s scope, use of cinematography and performances, while raising legitimate questions about the substance of the film’s plot and ultimate message.

## How to read with a critical eye

Actively engaging with the text of your article can be a really effective way to move towards critical reading and then writing. After you have initially read the article, it can be helpful to write structured and detailed notes based around the content.

**Tip:** If you can arrange a group of your peers to consult the same article, you will be able to discuss the article together and compare notes to get a variety of useful perspectives.

A very effective way to do this is to ask questions of the text, and try to answer these as you work through a detailed reading of the article. If your notes directly relate to some or all of the questions discussed below, you will very quickly develop a critical portfolio around the articles you read. You will also find these very helpful when you begin writing, as you should be able to incorporate these thoughts within your assignments.

## Does it make sense to you?

This can be a great way to start thinking critically. Reading the abstract will give you a good overview of what will be discussed and this is when you can begin to formulate some initial thoughts and opinions.

The article we discussed earlier ‘[Chocolate with high Coca content as a weight loss accelerator](https://www.researchgate.net/publication/276892317_Chocolate_with_high_Cocoa_content_as_a_weight-loss_accelerator)’ provides a good example. The abstract goes into the expected academic detail giving information about the sample size, age range, the quantity of chocolate introduced into the diet, the duration of the study and details of a comparison group and methods of measurement. However, you need to examine if it makes sense from your own perspective?

In our experience, eating chocolate (unfortunately) tends to have a negative effect on our weight. By keeping this firmly in mind, we could probably have ascertained the authors’ intentions (to expose limitations in the publishing of articles relating to diet) much more quickly than many [national newspaper](https://www.express.co.uk/life-style/health/567211/Chocolate-weight-loss-lowers-blood-cholesterol-aids-better-sleep)s.

While the above is an extreme example, always keep in mind your own thoughts, opinions and experiences as you are reading. They will help you to ask the right questions. Many people expressed concern recently over published research into the effectiveness of using Hydroxychloroquine as a treatment for COVID-19. The [retraction of the studies](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736%2820%2931180-6/fulltext) in this area shows the value of treating all research with a critical eye.

Is the research exciting and/or new?

You should always be on the lookout for new areas of interest and debate when considering articles to discuss as part of your reading. As we have established, journal articles report the findings of the latest research and experiments which are taking place within your field of study. This is not only exciting, but also provides you with an opportunity to engage with debates which your tutors themselves may be actively engaged with and interested in.

From a perspective of being critical, these new ideas can offer significant potential for you to engage critically. In the [example above](https://iopscience.iop.org/article/10.3847/0004-6256/151/2/22), note that astronomers found ‘**evidence**’ that there ‘**might**’ be a ninth planet orbiting the outer edges of the solar system.

This provides you with a perfect opportunity to study the data collected, examine the methodologies used and formulate an opinion on the conclusions drawn. You could discuss the potential implications of these conclusions, but also compare these findings with those from other researchers. You might be able to identify limitations with the research and suggest further work which may need to be undertaken in order to fully validate the claims being made. All of these will lend a critical slant to your writing and demonstrate your willingness to engage with your subject matter at a higher level.

Discussion of new and exciting claims will help to better engage and connect with your readers when you proceed to the writing stage. You should, however, exercise caution when engaging with these materials. As exciting as the prospect of an undiscovered planet may be, research into fast moving areas often leaves much yet to discover. [Alternative viewpoints](https://www.sciencealert.com/astronomers-now-doubt-there-is-an-undiscovered-9th-planet-in-our-solar-system?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+sciencealert-latestnews+%28ScienceAlert-Latest%29) will often not take long to emerge! By treating these claims with equal levels of enthusiasm and healthy skepticism, you will be well on your way to reading critically.

## Is the author stretching their claims?

Providing criticism of authors who may hold many more qualifications than you do currently and/ or have worked in a field of study for many years is something that many students find difficult. However, it is important to remember that you are a scholar too.

Your role is not to analyse the authors’ intelligence, or qualifications. Your job is to analyse the logic or truth of their claims. You can do this by a careful evaluation of the logic and processes which should be carefully outlined for you in the article you are reading.

A good place to begin with this process is to read the limitations and discussion sections. These may provide valuable insight into the shortcomings of the research conducted. Some authors tend to underplay these, so you should actively seek them out and explore how addressing these limitations could affect the conclusion.

**Tip:** “Whenever you spot a possible shortcoming, explore how it affects the conclusion and what steps could have been taken to mitigate the negative effects of it” Simone, BSc Cognitive Neuroscience and Psychology

You should also give careful consideration to any possible biases which the author(s) may hold. Some journals list the authors’ conflicts of interests under their article. It is good to check these and other work by the author to observe their interests and biases. This can be particularly important if you are reading articles from outside the academic sphere. A good question to ask yourself when reading any source is ‘Whose interests are being served here?’. If a particular product or commercial interest receives excessive coverage, then there is a good chance the author(s) may not be being completely objective in the way they report things.

## Is the research supported by existing literature?

It is good practice to ensure that you check up on the citations in the paper to understand the background on which the article is based, particularly those which are referenced to support the points which inform your own research. Sometimes, the reference cited may be very loosely related to the point it supports in the article you are reading, so the references section can also reveal gaps in the authors’ research. They may also provide other interesting avenues for you to explore and help you to engage even deeper with your research topic.

## Are all appropriate authors cited, and if not, why?

A well written article should provide links to the relevant theories and debates which constitute the established body of knowledge within that field. You should look out for explanations of how their work will extend, contradict, or confirm current theories and practices.

This should provide you with a good indication of where the author is located in the larger debate. The introduction section should also state what contribution the article is making to a larger debate.

If key articles or research findings are missing from your article, you should think about why this is. It may be that the work expands on existing material so significantly that reference to more established work is not needed. It does, however, provide you with a good opportunity to take a critical stance. You can highlight important omissions from your chosen article and expand on how these could add important considerations to your chosen topic.

**Tip:** “Find and read articles that take contrasting views from that of the author and see why they differ, which of them you agree with and why.” Fatimah, PhD Law researcher

## Are the methods proposed appropriate to the question being asked?

Paying careful attention to the research methodology employed is extremely important when evaluating the articles you read.

Sample sizes particularly can be an important consideration here. Many studies, by necessity, rely on a relatively small group of people when conducting their studies. If a larger size, or different socio-economic group would have been more useful to study, then you should make note of this. You can then search for similar studies or propose further research which would be useful if none exists. **Beware of articles which make bold claims based on limited data**. The research will undoubtedly be of value, but the article which completely solves any particular issue or controversy is likely yet to be written.

You should also pay close attention to the design of the research methodology. Thinking about how practical it may be in a real-life situation can be a useful question to ask and lead you towards discussing the article in a constructive manner.

## Summarising your thoughts

Once you have finished your detailed readings and taken notes (based on answering some or all of the questions outlined above), it can be helpful to write short summaries of the article(s) you have read.

Highlight the positives and any negatives of these articles and attempt to summarise the main ideas and any significant problems in your own words. Once you have done this for a number of articles, you should hopefully begin to see a clear pattern emerging which will allow you to effectively incorporate what you have read into your writing.

Remember: your aim should usually be to **discuss and critique what you have read**, not simply describe the content. Look for patterns and connections within the articles you read as this will allow you to frame individual points of interest you identify within an article or within a larger debate. All of these strategies will help you to begin reading more critically.

As a final tip, we would encourage you to read as widely as possible around your topic. The more you read, and apply these strategies, the sooner you will find they become second nature. If you do this, you will soon begin to enjoy reading this content and using it to stimulate your own thoughts and opinions.