Research Investigation Writing Guide   
(revised July 2020)

# Overview

In a research investigation, you are given a claim. From the claim, you need to:

1. Generate a **research question** and explain **why** that question is important (Rationale section – 6 marks)
2. Attempt to answer the question by presenting **arguments** backed up by **evidence** (Analysis section – 6 marks)
3. Use the evidence to **draw a conclusion** and reflect on the **quality** of your investigation of the topic (Conclusion and Evaluation sections – 6 marks).

You can also receive up to an additional two marks for the quality of your communication and referencing.

# Where to start

Choose a claim from the claims available on the task sheet. (If you do not feel comfortable with the claims provided, you can come up with one of your own, but this needs to be negotiated with your teacher.) Conduct some **preliminary research** to give you an idea of what the *main* areas of research are relating to this claim. You are looking for a subtopic that is easy to find information on, and that has reasonable depth. Stick to mainstream areas of research that have plenty of articles, and avoid areas that are too narrow or overly technical.

From this research, you need to develop a **research question**. This is the question that your assignment is trying to answer. The general format of a research question is:

*Does \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ affect \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_?  
 independent variable dependent variable context/population*

For example, if you chose the claim, "Violence in media is bad for society", you might look up terms like "violent media psychology" or "effects of violent media". You might find, after reading some of the top matches, that there is a lot of research on video games causing aggression, and much of this research focuses on children. This would allow you to generate a research question like:

*Does exposure to violent video games increase aggressive behaviours in children under 12?*

This research question contains three very specific areas of focus (underlined). Your research question is marked on its specificity. (See the comments bar for additional examples for Physics, Chemistry, Biology and Psychology.)

You can then decide that those three things are going to be the focus of your research question, and you can start to collect articles or websites that are related only to that question. When you have collected about five sources, you should stop collecting and start writing.

Your assignment is divided into four sections: Rationale, Analysis, Conclusion and Evaluation. The following sections will explain what you need to do in each. It is recommended that you type onto this document and delete the instructions as you complete them. This will help you to ensure that you have not missed anything.

# Getting marks for communication

To ensure that you get the maximum marks for communication, make sure that you do the following:

* *Get to the point.* Many students think that more words equals more marks. It doesn't. You receive better marks for being concise than for writing in a flowery, repetitive manner. Include all of the details that you need to, but no more. Show that you understand what is important by knowing what to leave out.
* *Retain the style of a report.* In scientific writing, personal pronouns such as "I" or "me" are not used. Instead, use the passive voice. For example, rather than, "I think that my research question could have focused more specifically on…", say, "The research question could have focused more specifically on…"

A report uses headings, so you should leave the headings in that are written on the following pages (Rationale, Analysis, Conclusion, and Evaluation). You can add sub-headings if you wish.

Also ensure that any tables, graphs or diagrams have a caption describing what the figures are (e.g., *Figure 1. Number of interactions interpreted as aggressive for a group of 10-year-old children*), and are referred to in the text (e.g., "As shown in Figure 1…"). Note that you do not have to use figures, but if you do, you should annotate them properly.

* *Reference correctly.* **In the body of the text**, reference (preferably in APA style) by listing the author/s' surnames and year of publication in parentheses. In general, this will look something like:
  + Exposure to violent video games may place children in a more aggressive mindset (Smith & Yang, 2007).

or

* + Smith and Yang (2007) have argued that exposure to violent video games may place children in a more aggressive mindset.

See [this website](https://guides.library.uq.edu.au/apa6th-print-version#s-lg-box-20824629) for an extensive list of examples of in-text referencing for multiple authors, organisational authors, sources without a publication date, and so on for APA style. Use the panel on the left hand side to navigate.

**In the reference list at the end of the document**, use APA style. An online referencing generator tool will help you to ensure that your reference list is formatted correctly.

*You are given marks for communication based on whether:*

* *your use of scientific language is “fluent and concise” (good mark), “competent” (medium mark) or neither of these (poor mark);*
* *your use of genre conventions (report style) is “appropriate” (good mark), “basic” (medium mark) or neither of these (poor mark), and*
* *your use of referencing conventions is “appropriate” (good mark), “basic” (medium mark) or neither of these (poor mark).*

# Rationale

(Length: 250-500 words)

The purpose of the rationale is to **justify** why the specific parts of your question (the parts underlined on the previous page) are worth considering. To do this, split your rationale into sections (e.g., three paragraphs of 100-150 words each), with each paragraph looking at one of the underlined points. The example used on the previous page would have a rationale with an outline like this:

* *Video games* are worth considering **because**… (they have high use compared to TV, depictions of violence are increasingly realistic, etc. – reference)
* *Aggressive behaviours* are a concern to society **because**… (statistics about violence, imprisonment, etc. – reference)
* *Children under 12* are a focus of attention **because**… (the brain is in development, behaviours are being learned, etc. – reference )

Each argument that you make should be backed up by at least one reference, for a total of at least three references in the rationale section. It may be the case that the sources that you originally collected are not useful here; you may need to find more that look at the parts of the question rather than sources that try to answer it.

But remember: The purpose of the rationale is to argue **why** the parts of the research question are important, **not** to answer the question yet. If you find yourself starting to answer the question, move the sentence to the Analysis section and come back to it later. In the rationale, focus on why the question is worth asking.

By the time the rationale is completed, you should have convinced the reader, using referenced arguments, why your question is important. Finish the rationale by stating your research question clearly, making sure that there is a clear line of sight from the arguments that you have just made to the research question. (Don't, for example, argue why studying the effects on children under 12 is important, and then write teenagers in the research question.)

If you read back over the rationale and find that your arguments start too abruptly, you can place the claim at the beginning in a sentence like, "The claim \_\_\_\_\_\_\_\_\_ has several aspects that can be considered."

In summary, the rationale should have the following structure:

* Claim/introductory sentences (under 50 words)
* Justification for why specific element 1 is important (100-150 words)
* Justification for why specific element 2 is important (100-150 words)
* Justification for why specific element 3 is important (100-150 words)
* Research question (under 50 words).

*You are marked in this section on whether:*

* *your rationale is “considered” (good mark), “reasonable” (medium mark) or “vague” (poor mark);*
* *your references are “sufficient” (good mark), “relevant” (medium mark) or “insufficient and irrelevant” (poor mark), and*
* *your research question is “specific” (good mark), “relevant” (medium mark) or “inappropriate” (poor mark).*

# Analysis

(Length: 500-900 words)

In the rationale, you looked at the parts of the research question **individually**. In the analysis section, you now only consider the research question **as a whole**, and attempt to find evidence or data to answer it convincingly. The research question should generally be phrased in a yes/no format; however, the answer may be yes or no (or, more likely, somewhere in between).

To form a compelling argument, you should consider **evidence** **from both sides** where possible. For example, you may have 2-3 paragraphs “for”, and 1-2 paragraphs “against”. If there is more evidence for one side than the other, present your paragraphs accordingly. Ensure that each piece of evidence is appropriately referenced. In total, your analysis should contain a minimum of four and a maximum of eight references.

Build your paragraphs (of about 150-250 words each) as follows:

1. Start with an opening sentence that makes a yes or no **argument** in answer to your research question. For example, "Video games may promote aggression in children by promoting a more aggressive mindset." These opening sentences should relate directly to the research question in an obvious way.
2. Convince the reader in several sentences (say, 3-6) that this argument is true using **evidence**, such as the details of a study or studies, or statements from an authoritative website. Where multiple studies or sources say the same thing or have the same pattern in their findings, group them together into the same paragraph. (Do this for at least two paragraphs to show that you can recognise patterns in information.) Be concise: present enough detail to convince the reader by giving them context and details, but not so much that the reader becomes bored by an unnecessarily long or technical description. Remember to reference each piece of evidence by citing where it came from.
3. Present any major **limitations** of the study or source that you have just referenced (e.g., small sample size, conducted in another culture, conducted under lab conditions, did not consider the effect of other variables, etc.). Evaluate whether these limitations cast doubt on the evidence, or whether the conclusion of the study is still solid. Note that if most or all of the studies in your analysis have the same limitations, it may be more convenient to present the limitations as a separate paragraph.
4. If appropriate, finish with an **argument** that shows how the evidence that you have presented relates to the research question. For example, "These studies indicate that violent video games promote a more aggressive mindset. This may lead to more aggressive behaviour." Alternatively, "These studies indicate that violent video games promote a more aggressive mindset. It is not clear from these studies, however, whether or not this mindset translates into aggressive behaviour."

Continue making paragraphs in this format until you have made 3-5 paragraphs. Ensure the paragraphs are presented in a logical order (for example, all the "yes" paragraphs then all the "no" paragraphs). There is no need to make all of the paragraphs the same length; some pieces of evidence may be more extensive than others.

Ensure that **at least two** of your paragraphs contain *more than one reference supporting the same information*. This will help you to demonstrate that you have seen patterns in the data and are able to group those patterns accordingly.

In summary, the analysis should have the following structure:

* Argument 1 and its evidence (150-250 words)
* Argument 2 and its evidence (150-250 words)
* Argument 3 and its evidence (150-250 words)
* Argument 4 and its evidence (150-250 words)
* Limitations, if not included in the above paragraphs (150-200 words)

*You are marked in this section on whether:*

* *your references are “sufficient and relevant” (good mark), “relevant” (medium mark) or “insufficient and irrelevant” (poor mark);*
* *your analysis of the data (such as grouping common arguments together) is “thorough” (good mark), “obvious” (medium mark) or “incorrect/irrelevant” (poor mark);*
* *your identification of the limitations of the evidence is “thorough” (good mark), “basic” (medium mark) or “incorrect or insufficient” (poor mark); and*
* *your arguments are “justified” (good mark), “reasonable” (medium mark) or “inappropriate or irrelevant” (poor mark).*

# Conclusion

(Length: 200-300 words)

The conclusion has two parts. The first part specifically addresses your **research question**; the second part addresses the **claim** from the task sheet.

1. In about 150-200 words, **draw a** **conclusion** about what the answer is to your research question. The opening sentence of your conclusion should include most of the same words as you used in the original research question. For example, “There is significant evidence to suggest that violent video games do not lead to aggressive behaviour in children under 12."

The sentences after this are used to explain why the answer is not necessarily a clear yes or no. It is a good idea to show that you support one side more than the other, but to acknowledge that there may be elements of truth on the other side also. Be clear about this using contrasting words like “however” or “on the other hand”. Ensure that your conclusion is clearly justified by referring to a summarised version of the evidence that you have presented.

1. In a shorter paragraph of about 100 words, briefly discuss what your evidence **does and does not** say about the **original claim**. For example, you may state that the argument that violent video games cause aggression in children under 12 is not supported by the evidence, and therefore cannot be used to support the original claim that "violent media is bad for society". *However*, as depictions of violence may be more realistic in other media (such as movies), it is possible that other forms of media may cause aggression. Be careful about making sweeping statements about whether the claim is right or wrong, as you have only investigated a small portion of it. See the comments bar for additional examples.

In summary, the conclusion should have the following structure:

* Conclusion – answer to the research question (150-200 words)
* Discussion of the claim (100 words)

*You are marked in this section on whether:*

* *your conclusion is “justified” (good mark), “reasonable” (medium mark) or “inappropriate or irrelevant” (poor mark); and*
* *your discussion about the claim is “credible” (good mark), “relevant” (medium mark) or “insufficient or inappropriate” (poor mark).*

# Evaluation

(Length: 150-300 words)

*Note: No referencing is required in this section.*

The final three paragraphs (which will be 50-100 words each) are an evaluation of your assignment itself. Any conclusions that you want to draw about the research question or claim should be said before this point. *Beware of being too hard on yourself, as you do not want to finish the assignment on a negative note.*

1. Reflecting back on the assignment, evaluate the **quality of evidence** that you used to draw your conclusion. Are the sources trustworthy and reliable? How do you know? Did you lean too heavily on one source, or use a variety of sources? Did you have a sufficiently broad set of sources to draw on? Did you use websites or journal articles? (Note that if you have used only journal articles, the quality of your evidence is likely to be high but limited by the number of references that you were able to collect.) What impact is this likely to have had on your conclusion?
2. Next, make one or two suggestions for **improvements** to the investigation. This should follow logically from the previous paragraph where you talked about the quality of your evidence. For example, the investigation may be improved by obtaining more references/evidence about a particular aspect of what you investigated, or making minor adjustments to the research question to look at a more specific area.
3. Finally, make one or two suggestions about **extensions** to the investigation. The most logical way to do this is to consider other parts of the claim that were *not* examined by your research question. For example, the claim “Violence in media is bad for society” could be further explored by looking at the effect of short versus long-term exposure, the effect on players’ attitudes towards valuing other people, the effect on friendships and social networking, etc.

After the last line of your evaluation, add a **word count.** The reference list (next page), tables of data and graphs do not count towards the word limit. If you exceed the word limit specified on the task sheet, the marker will stop reading (and marking!) when they reach the word limit. Present the word count like this:

*Word count: 1596*.

In summary, the evaluation should have the following structure:

* Evaluation of the quality of evidence (50-100 words)
* Improvements to the investigation (50-100 words)
* Extensions to the investigation (50-100 words)

*You are marked in this section on whether:*

* *your evaluation of the quality of evidence is an “insightful discussion” (good mark), “reasonable description” (medium mark) or “cursory or simplistic” (poor mark), and*
* *your improvements and extensions are “considered and relevant” (good mark), “relevant” (medium mark) or “ineffective or irrelevant” (poor mark).*

# References

Present your references alphabetically by surname (or organisation) in an author-date format such as APA style. If you are unsure how to do this, use an online reference generator.