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What is a Results Section?

A detailed, logical, and sequential record of the findings and results that were produced in your project as consequences of your research methodology. These results respond to the central research questions of the project.

Tips on Writing the Results: What Should I Address?

- ✓ Summarise the **data** collected in your research, as well as the statistical treatment/analyses of them. Pay close attention to data that help to outline significant trends or patterns.
- ✓ Record the **results and findings** that answer your research questions and which you intend to address in your discussion section. Also record any **negative results**; you may have to account for such results in your discussion section.
- ✓ However, ensure you are only sharing **relevant data and findings** that connect (positively or negatively) with the objectives of the research.
- ✓ Note any results related to those obtained by **other researchers**, especially if they disconfirm other results, or are in any way controversial.
- ✓ Address the **research questions** and hypotheses you raised in the introduction and connect those questions to the results.
- ✓ Report any significant/relevant **observations and measurements** recorded while conducting the procedures described in your methods section.
- ✓ Where possible, **illustrate your results** in the form of tables, graphs, and other illustrations, rather than in written text; this can often be more reader friendly.
    - ✓ Remember to refer to your illustrations in the body of the text.
    - ✓ Number tables and illustrations separately for clarity, e.g. Table 1, Table 2, Figure 1, etc.
    - ✓ Avoid figures that display too many variables or patterns, which can be confusing for the reader.
- ✓ Organise and structure your findings systematically into a **logical sequence** so that the results can be clearly mapped onto and compared with the research questions and the methods section.
- ✓ Where appropriate, use **subheadings**, which can make the results somewhat easier for the reader to follow.
- ✓ **Do not attempt to interpret or explain** the data in this section (save all interpretations for your discussion section). Equally, avoid recording additional background information, which also can be discussed later.
- ✓ The **language** should be concise, easy to understand, and objective (i.e. without any bias). Where possible, use simple syntax for great clarity, i.e. *Subject (noun) + action (verb) + object*. See the UCD Writing Centre's handout on style tips for scientific writing for more information.
- ✓ **Avoid repetition**/ presenting the same data or findings more than once.

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Structuring the Results

Introduction:

- ✓ Remind the reader of the central research questions and connect your results and findings to these questions directly.
- ✓ Provide any relevant background/ contextual information required.

Body Paragraphs:

- ✓ The body may be structured chronologically or thematically (according to the research questions and/or research objectives). The latter is often easier for readers to follow because thematic structuring essentially "tells the story" of your research.
- ✓ Record the data, findings, observations, and measurements through a combination of text and illustrations. Connect these data and findings to a question/goal outlined before.
- ✓ Look for trends or patterns in the results that you can group together, i.e. perhaps a singular finding/observation responds to one of your research questions; if not, perhaps a group of findings/observations work together to respond to your research questions. If you are struggling to group/ structure your findings, trends and patterns can be identified by "visualising" the results in the form of lists, spider diagrams, and/or mind maps.
- ✓ It can be helpful to categorise your findings, e.g.
  - *Key Finding*, i.e. addresses a research question within the project.
  - *Significant Finding*, i.e. does not address a research question directly, but is relevant to the interpretation of the data.
  - *Peripheral Finding*, i.e. does not address a research question directly, but is relevant to the research more broadly, and/or peripherally engages with the field more broadly.
  - *Negative Finding*, i.e. does not address a research question and/or contradicts the research objectives, but will have to be addressed in the discussion section.

Closing Paragraph:

- ✓ Summarise the key findings of the research, as well as any minor (but notable/ relevant) results. This paragraph prepares the reader for your discussion section, in which you will interpret the results and contextualise them within the field/ literature more broadly.

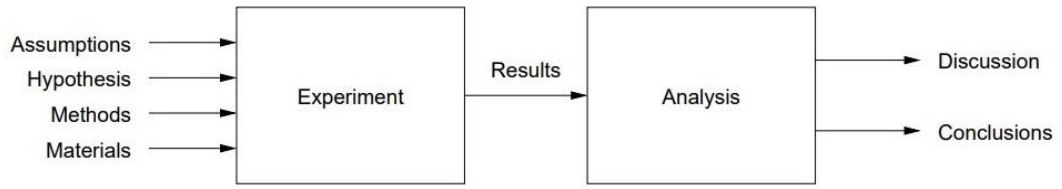

FIGURE 2: This diagram illustrates the relationship between the different stages in the experimental process. Do not intersperse your Results with Materials and/or Methods. Resist the temptation to pepper your Results section with a Discussion.

Chandrasekhar, R. *How to Write a Thesis: A Working Guide*, Australian Research Centre for Medical Engineering (ARCME), 2002.

Quantitative vs. Qualitative Data

<table>
<tr><th></th><th>Quantitative Data</th><th>Qualitative Data</th></tr>
<tr><td>Definition</td><td>Quantifiable numerical data.</td><td>Non-numerical, descriptive data.</td></tr>
<tr><td>Examples</td><td>Measurements (distance, height, length, volume, temperature, etc.), counts, calculations, chemical reactions, sensors, projections, etc.</td><td>Testimony, self-reporting, written documents, etc. In other words, data that is often language-based and that presents reported evidence of the human experience and human ideas.</td></tr>
<tr><td>Collection Processes</td><td>Experiments, controlled observations, mathematical theorems, longitudinal studies, etc.</td><td>Interviews, surveys, archival manuscripts, polls, longitudinal studies, etc.</td></tr>
<tr><td>Example</td><td>The content of palmitic acid (C16:0) and palmitoleic acid (C16:1) was higher in mare’s milk than in complete feed and meadow hay, shown in Tables 4 and 5.
Table 4. Fatty acid composition of mare’s milk (fed with meadow hay)
<table><tr><th>Fatty acids</th><th>Mare’s milk</th></tr><tr><td>C4:0</td><td>No data</td></tr><tr><td>C6:0</td><td>No data</td></tr><tr><td>C8:0</td><td>1.02</td></tr><tr><td>C10:0</td><td>3.42</td></tr><tr><td>C12:0</td><td>4.22</td></tr><tr><td>C14:0</td><td>6.27</td></tr><tr><td>C15:0</td><td>0.49</td></tr><tr><td>C16:0</td><td>25.23</td></tr></table>- Nikolić, Aleksandra et al. “Influence of feed for horse nutrition on the chemical parameters and fatty acid composition of mare’s milk”, Meat Technology, vol. 62, no. 2, 2023, pp. 422-426.</td><td>At baseline, 67% of the control group patients were dissatisfied with their pain level, and 75% of the experimental group dissatisfied. At the follow-up assessment, although the proportion of the control group who were dissatisfied with their pain level increased by 5% (72%) and the proportion of the experimental group who were dissatisfied decreased by 11% (64%), this 16% difference was not statistically significant (p>.05).
- Judge, M. Kay M. et al. “Clinical Efficacy and Implementation Issues of an Electronic Pain Reporting Device among Outpatients with Cancer”, Support Care Caner, vol. 29, no. 9, 2021, pp. 5227-5235.</td></tr>
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Quick Tips on Graphs, Charts, Figures and Illustrations

Uses:

- Help to "visualise" information and/or to display opposing information. This can be more reader friendly.
- Simplify complex data sets or ideas, responses, etc. This allows your reader to "map" the information.
- Provide objectivity and clarity, i.e. our written work is not always perfect and sometimes we can complicate the point being made through awkward writing; graphs, charts, figures, and illustrations help the reader see past those textual barriers.

Tips:

- Ensure your labelling is organised, consistent, and simple, e.g. Figure 2.3 is located in section 3 of Chapter 2.
- Locate such features in the most strategic place in the text, i.e. place charts in the chapter where it will most benefit the reading of the research.
- Use sequential ordering and explain the feature before you present it to the reader.
- Such features should increase, not hinder, readability.
- If possible, avoid presenting any figures or charts in the middle of a paragraph; ideally, they would come at the end of the relevant paragraph.

Equations:

- Like the features mentioned above, equations should enhance the readability of your work, rather than complicating it.
- Mathematics is another kind of language, i.e.
  - Mathematical equations work well in relation to/ against prose and language.
  - However, equations do not work well when they are intertwined too much with language, i.e. similar to using different languages excessively in one sentence.

> "Mathematics is already, by its nature, logically complex and subtle. The sentences that link the mathematics are usually most effective when they are simple, declarative sentences. Compound sentences should be broken up into single sentences. Avoid run-on sentences at all cost. […] Rather than saying
>
> **As we let *x* become closer and closer to 0, then *y* tends ever close to *t*0**
>
> instead say
>
> **When *x* is close to 0 then *y* is close to *t*0**
>
> Of course mathematical notation allows us to write lim x→0 y = t0 instead of either of these; this abbreviated presentation will, in many contexts, be more desirable"
>
> - Steven G. Krantz, *A Primer of Mathematical Writing*, 2002.