Aviation Research Project: the proposal

What is a research proposal?
• A plan or outline of your proposed research project

What is its purpose?
• To demonstrate that you have identified a suitable question/problem to investigate
• To demonstrate that you have identified an appropriate approach to investigate the question/problem

Structure of research proposal

<table>
<thead>
<tr>
<th>Title page</th>
<th>This is a separate page with title of the proposal, name, ID and other identifying details as requested.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>This section provides contextual information to set the scene for your research project. You will also discuss why this research is needed and the broad aims and objectives.</td>
</tr>
<tr>
<td>Research questions</td>
<td>State very clearly and concisely your research questions.</td>
</tr>
<tr>
<td>Literature Review</td>
<td>This is a more detailed presentation of information related to your proposed research. You will draw on literature related to your topic including journal articles, reports and other scholarly sources.</td>
</tr>
<tr>
<td>Research design (methodology)</td>
<td>This section details how you will you go about answering your research question/s.</td>
</tr>
<tr>
<td>Research timeline (if required)</td>
<td>This section details what activities or tasks will be undertaken in your research and when.</td>
</tr>
<tr>
<td>References</td>
<td>This is a list of the references cited in the proposal. For further guidance about referencing and avoiding plagiarism, check the UniSA website on referencing.</td>
</tr>
<tr>
<td>Appendices (if required)</td>
<td>This includes supplementary materials placed at the end rather than in the main part of your proposal where they might distract from the flow of the discussion.</td>
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(NOTE: Check your project guidelines for any specific requirements or variations to the above structure)
The introduction

The WHAT:
- introduces the context or background
- introduces the problem to be investigated

The WHY:
- identifies the significance of the problem
- identifies a gap in current understanding of the problem
- demonstrates a need to investigate the problem

The OUTCOMES
- states the aims (where the research will go)
- states the objectives (what the research will do)

(Adapted from Monash University 2014)

The research questions
- can be expressed as question, hypothesis or proposition depending on the type of research project
- are precise and specific
- state exactly what you are going to investigate

Example:

**Question format:**
What effect does sleep inertia have on the ability to detect change on a visual display?

**Hypothesis:**
Sleep inertia impairs the ability to detect change on a visual display.

**Proposition:**
Sleep inertia is linked to impaired detection of change on a visual display.
The literature review

- is not expected to be extensive in the proposal
- demonstrates your ability to identify relevant sources
- refers to a few key articles/sources that will inform your investigation and the way you will conduct it
- identifies a gap in the literature which your project will attempt to fill

Research design (methodology)

- outlines *How* the research will be conducted
- identifies what type of data will be collected
- identifies how the data will be collected
- identifies how the data will be analysed
- states any limitations in regard to size of the project, the time available etc.

➢ the future passive tense (see example below) will be used to detail the actions that will be taken e.g. *A survey will be distributed to pilots*

A note about grammar

<table>
<thead>
<tr>
<th>Verb tense</th>
<th>Purpose/function</th>
</tr>
</thead>
</table>
| Simple present tense | Used when talking about an idea or theory that is constant  
➢ *Simulation techniques are the main non-invasive method used to determine* .... |
| Simple past tense | To describe actions or events in the past that are completed  
➢ *In a previous study, Smith (2005) implemented* ... |
| Present perfect tense | To describe actions or events in the past that are connected to the present  
➢ *To date various methods have been developed and introduced to measure* X. |
| Passive voice     | To give a more objective, authoritative tone to your writing  
➢ Focus on the action, rather than the person doing the action, e.g.:  
➢ *Data selection will be based on input parameters.* |
**Literature review example:**

Flame and heat propagation into the passenger compartment *is* a deadly occurrence. According to one study, in nearly two thirds of vehicle fire deaths, the swift advance of fire and the ensuing incapacitation of passengers *were* contributing factors (United States Fire Administration 2002). Once the engine compartment was fully involved, the flames *spread* into the passenger compartment in as little as one to six minutes, resulting in occupant death in 1 to 3 minutes due to the coinciding effects of heat, burns, and toxic gases (Tewarson, Quintiere & Purser 2007). These results *should be considered* in relation to emergency response times. For example, in rural accidents, it could take more than half an hour before an emergency response team *arrives* (Bahouth 2004).

(Adapted from Patronik 2008)

**Proposed methodology example:**

**NOTE:** the future passive tense is used to detail the actions that will be taken

The vertical test *will be performed* with samples cut from each insulation of the same size as the horizontal test. The burn test cabinet *will be placed* in the vertical position and the samples *will be* secured one at a time in the cabinet. The methane burner with a flame of 38 mm *will be placed* under the sample with the burner top 19 mm from the sample for ignition. The same requirements to be met during the horizontal FMVSS 302 test cannot be used in the vertical test because of the rapid nature of vertical flame spread; therefore, a subjective approach *will be used* to compare horizontal flame spread to vertical flame spread and to illustrate why FMVSS 302 does not correlate to vertical orientations.

(Adapted from Patronik 2008)

**Why reference?**

- Avoids plagiarism and maintains *academic integrity*
- Shows exactly where the information comes from
- Strengthens your argument or provides evidence to support your position
When to reference?

- Paraphrasing the words and ideas of others
- Summarising the words and ideas of others
- Quoting the words of others
- Copying the data, graphs, images and tables of others
- Mentioning the ideas or work of others (unless it is considered general knowledge)

How to reference?

1) Include in-text references which provide:
   - Author’s surname or family name
   - Year of publication
   - Page number (when quoting, using data, graphs, tables and images from a specific page or pages)

2) Include a reference list which provides full bibliographic details of sources referenced in your report

Additional resources:

For resources on referencing (including UniSA Harvard and APA referencing styles) and academic integrity, go to UniSA’s referencing website.

References


Patronik, EA 2008, An analysis of vehicle fires and potential methods to reduce their severity through more stringent material standards, ProQuest, UMI Dissertations Publishing.