Advanced Medical Science

Writing a Project Outline/ Research Proposal

All AMS students are required to submit a project outline at the end of week 6: that is, Monday August 25. The project outline is fundamentally a research proposal. Below are some general guidelines on writing a project outline/research proposal. The style of your outline will depend upon the nature of your project: that is, whether or not you are undertaking a project that involves the collection and analysis of data. If you are unsure as to which format suits your project, please ask your project supervisor.

What is the purpose of a research proposal?

A proposal is a written representation of a program or a project that a researcher seeks to conduct. Part of the research development process includes telling other people about plans and intentions for the research.

The purpose of writing a research proposal is for you:

- to decide on a research topic and to formulate a research question
- to clearly articulate your research plan to someone else
- to give you the opportunity to receive feedback on the research plan, and
- to hopefully provide both a plan and the momentum towards successful completion of the research

For those of you who will pursue a research career, writing research proposals will become a frequent activity as you submit grant applications to research funding bodies. Although the primary purpose of grant applications is to request funding, a fundamental part of the application is the research plan and proposal.

What is the structure of a research report (ie the final product of your research)?

This is useful to know before we discuss the nature of a research proposal. In general, the research report will have several sequential sections.

Title and Abstract

The title should indicate the research question, without being too general or too specific, and it might indicate the final conclusion provided that this conclusion is clear and unambiguous. The abstract is a paragraph which summarises the overall research report in about 200 to 400 words. The abstract is written in very tight style, with only the main points given. A good abstract allows other to decide whether the full report is relevant to their enquiries and thus whether they should read the whole report. The abstract is usually the last thing written.

Introduction to the research question

Here you write the basic question to be answered, including its importance clinically, from a public health perspective, perhaps from economic and social perspectives.

Literature review

The literature review is much more than just an academic requirement of good research reports. It is the summary of all the previous research that you can find, which is relevant to your own research question. By a thorough literature review you can learn the mistakes others have made and the lessons they have learned. You might find useful information on the possible magnitude of the effect you are researching. A literature review helps to avoid repeating previous research, and allows you to identify where your research is different or where your research will answer previously unanswered questions. In the literature review, you build your argument for why you are asking your particular research question and you support this argument from previous research.

The literature review is also where the style of referencing is important. Two standard styles are called Harvard Style and Vancouver Style. Information on these is readily available from libraries and on the internet. In addition, you might want to learn how to use a referencing software package such as EndNote or Refman. Keeping track of your references is very important so that later you are able to refer to them in the body of your report once you are writing it.

Subjects and methods

Here you indicate firstly, what subjects will be used in your study – persons, animals, or other experimental units. Then you indicate what data will be collected from these experimental units. Finally, you indicate the statistical methods that will be used to analyse the data and this shed light on the answer to the research question.

If you are not collecting or analysing empirical data, this section should outline the analytic methods you have used and the texts you have analysed.
Results

This is where the summary data is provided, including the output of all the relevant analyses you perform. It usually includes numbers that are summaries of the data, and statistical information such as p-values and confidence intervals. This section is also where graphs and tables usually appear.

For non-empirical projects, this is the major part of your argument. It should be clear and well-supported with evidence.

Conclusions

This is where you put your opinion about what is the answer to the original research question, based on the results derived from the data, experiments or your literature search. It is also where you indicate any shortcomings of your own study, and what might be done to improve such research in future.

Appendices

Appendices are not always used. However, if there are large amounts of information that should be provided, this is placed here. Examples include the full text of any questionnaires that you might have used; details of complex procedures that were used; summary statistics too extensive to place in the body of the report; summary statistics which appear as graphs in the body of the report.

Finally ...

All research reports are different. Variations to the style may be both necessary and useful if the research project does not fully fit the standard style. An example is when someone researches three or four related questions, but which use very different methods. In this case, they may choose to produce a report which has common sections for literature review and subjects, but then devotes separate chapters to each question, with each of these chapters containing the methods and results as appropriate. Discuss any variation to the style of the report with your project supervisor.
STRUCTURE OF AMS PROJECT OUTLINES

At the beginning of your project outline, please note the name of your supervisor(s) and indicate how much contact you have had with your supervisor so far, and plans for future supervision meetings.

- Synopsis or summary
- Research question
- Objectives
- Background and rationale
- Research design
- Scope and limitations
- Time frame

Synopsis or summary

The synopsis is the equivalent of an abstract in the research report. It should be brief (~100-150 words), be clear and outline the key points of the research.

Research question

What is the key question or issue being addressed in the research? What is the aim of the research?

Objectives

The research objectives are specific statements about exactly what the proposed project will accomplish. These must be specific, concrete and doable. Objectives are usually phrased as “to examine”, or “to determine”, or “to identify” etc.

Background and rationale

This section outlines the background and reasons for proposing this research. This section typically draws on relevant previous research or other sources on which the research is based. It may point out gaps in previous research conducted that has led to the development of the proposed research, or highlight other needs that the research will address.

Research design

This section describes how you will actually carry out the research. You will need to outline these things:

- what is your sample/experimental preparation – nature, size, and how subjects will be selected
- data to be collected or texts to be analysed
- method of data analysis

This section must be sufficiently detailed and explicit so that your reader is clear about what you will actually do to undertake this research.

Scope and limitations

What are the limitations of your choice of research method/s to address your proposed question? This is where you show your reader that you have considered and are aware of the limitations of your chosen method/s, and make some statements about the intended scope of the research being proposed.

Time frame

This section outlines a schedule of the research and provides a timeline. This will (hopefully) ensure that the research is achievable in the time available and will assist you to keep to schedule. Below is an example of a proposed timeline:
SAMPLE Time Line (to be adapted to nature of project and AMS timelines)

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