

COASTAL FIELD WORK PREPARATION

1. Write literature review

Look up the literature on the subject you have chosen. Journals to look into are Coastal Engineering, Marine Geology, Continental Shelf Research, Journal of Geophysical Research (Oceans). The first four journals can be found on <http://www.sciencedirect.com> and the last on <http://www.agu.org/pubs/back/jc/index.shtml>

Read at least five papers on your subject and make a review. Find the niche in knowledge on your subject. Filling this niche should be the main aim of your research.

2. Write research proposal

The literature review is part of the research proposal. Based on this you define the missing link in knowledge on the subject you have chosen. Define the aim of your research but consider your starting point and boundary conditions. It makes no sense to aim at quantifying the relative contribution of the wave-related sand transport to the total sand transport rate on the beach if you have no instruments to measure the sand transport. So, narrow down your research goal. Basic questions in your research proposal should be

- What is known from literature?
- What is lacking in knowledge?
- What are you going to do about this?

A comprehensive paper on how to write a research proposal is given on page 2-5 of this handout, which can also be viewed on

http://www.meaning.ca/articles/writing_research_proposal_may02.htm

3. Course on data acquisition and processing in coastal research

A short course on data acquisition and processing is provided within the Coastal Field Work Preparation course. The short course deals with 1) the type of instruments used, 2) calibration, interpolation and presentation of data, 3) Statistical analysis methods, 4) Time series analysis methods, 5) Morphometric analysis methods, 6) Overview of available software to do your analysis. Of course, during this short course you will get the opportunity to 'play around' with the aforementioned analysis techniques, e.g. in the form of a Matlab introduction.

4. Hands on experience

There will be one day in the Coastal Field Work Preparation course in which you will get the opportunity to do measurements with the same equipment as used during your 'real' field work. This day will deal with: 1) how to build up the equipment, 2) how to start-up the measurements, 3) how to read the data from the datalogger, 4) how to do a first calibration and verification.

5. Result of the Coastal Field Work Preparation course

The main result of the Coastal Field Work Preparation course will be your Research Proposal. The first version of the Research Proposal is judged by your supervisor. Agreement on this first version is necessary to start your 'real' field work.

HOW TO WRITE A RESEARCH PROPOSAL

Most students and beginning researchers do not fully understand what a research proposal means, nor do they understand its importance. To put it bluntly, one's research is only as good as one's proposal. An ill-conceived proposal dooms the project even if it somehow gets through the Thesis Supervisory Committee. A high quality proposal, on the other hand, not only promises success for the project, but also impresses your Thesis Committee about your potential as a researcher.

A research proposal is intended to convince others that you have a worthwhile research project and that you have the competence and the work-plan to complete it. Generally, a research proposal should contain all the key elements involved in the research process and include sufficient information for the readers to evaluate the proposed study.

Regardless of your research area and the methodology you choose, all research proposals must address the following questions: What you plan to accomplish, why you want to do it and how you are going to do it.

The proposal should have sufficient information to convince your readers that you have an important research idea, that you have a good grasp of the relevant literature and the major issues, and that your methodology is sound.

The quality of your research proposal depends not only on the quality of your proposed project, but also on the quality of your proposal writing. A good research project may run the risk of rejection simply because the proposal is poorly written. Therefore, it pays if your writing is coherent, clear and compelling.

This paper focuses on proposal writing rather than on the development of research ideas.

Title:

It should be concise and descriptive. For example, the phrase, "An investigation of . . ." could be omitted. Often titles are stated in terms of a functional relationship, because such titles clearly indicate the independent and dependent variables. However, if possible, think of an informative but catchy title. An effective title not only pricks the reader's interest, but also predisposes him/her favourably towards the proposal.

Abstract:

It is a brief summary of approximately 300 words. It should include the research question, the rationale for the study, the hypothesis (if any), the method and the main findings. Descriptions of the method may include the design, procedures, the sample and any instruments that will be used.

Introduction:

The main purpose of the introduction is to provide the necessary background or context for your research problem. How to frame the research problem is perhaps the biggest problem in proposal writing.

If the research problem is framed in the context of a general, rambling literature review, then the research question may appear trivial and uninteresting. However, if the same question is placed in the context of a very focused and current research area, its significance will become evident.

Unfortunately, there are no hard and fast rules on how to frame your research question just as there is no prescription on how to write an interesting and informative opening paragraph. A lot depends on your creativity, your ability to think clearly and the depth of your understanding of problem areas.

However, try to place your research question in the context of either a current "hot" area, or an older area that remains viable. Secondly, you need to provide a brief but appropriate historical backdrop. Thirdly, provide the contemporary context in which your proposed research question occupies the central stage. Finally, identify "key players" and refer to the most relevant and representative publications. In short, try to paint your research question in broad brushes and at the same time bring out its significance.

The introduction typically begins with a general statement of the problem area, with a focus on a specific research problem, to be followed by the rationale or justification for the proposed study. The introduction generally covers the following elements:

- State the research problem, which is often referred to as the purpose of the study.
- Provide the context and set the stage for your research question in such a way as to show its necessity and importance.
- Present the rationale of your proposed study and clearly indicate why it is worth doing.
- Briefly describe the major issues and sub-problems to be addressed by your research.
- Identify the key independent and dependent variables of your experiment. Alternatively, specify the phenomenon you want to study.
- State your hypothesis or theory, if any. For exploratory or phenomenological research, you may not have any hypotheses. (Please do not confuse the hypothesis with the statistical null hypothesis.)
- Set the delimitation or boundaries of your proposed research in order to provide a clear focus.
- Provide definitions of key concepts. (This is optional.)

Literature Review:

Sometimes the literature review is incorporated into the introduction section. However, most professors prefer a separate section, which allows a more thorough review of the literature.

The literature review serves several important functions:

- Ensures that you are not "reinventing the wheel".
- Gives credits to those who have laid the groundwork for your research.
- Demonstrates your knowledge of the research problem.
- Demonstrates your understanding of the theoretical and research issues related to your research question.
- Shows your ability to critically evaluate relevant literature information.

- Indicates your ability to integrate and synthesize the existing literature.
- Provides new theoretical insights or develops a new model as the conceptual framework for your research.
- Convinces your reader that your proposed research will make a significant and substantial contribution to the literature (i.e., resolving an important theoretical issue or filling a major gap in the literature).

Most students' literature reviews suffer from the following problems:

- Lacking organization and structure
- Lacking focus, unity and coherence
- Being repetitive and verbose
- Failing to cite influential papers
- Failing to keep up with recent developments
- Failing to critically evaluate cited papers
- Citing irrelevant or trivial references
- Depending too much on secondary sources

Your scholarship and research competence will be questioned if any of the above applies to your proposal.

There are different ways to organize your literature review. Make use of subheadings to bring order and coherence to your review. For example, having established the importance of your research area and its current state of development, you may devote several subsections on related issues as: theoretical models, measuring instruments, cross-cultural and gender differences, etc.

It is also helpful to keep in mind that you are telling a story to an audience. Try to tell it in a stimulating and engaging manner. Do not bore them, because it may lead to rejection of your worthy proposal. (Remember: Professors and scientists are human beings too.)

Methods:

The Method section is very important because it tells your Research Committee how you plan to tackle your research problem. It will provide your work plan and describe the activities necessary for the completion of your project.

The guiding principle for writing the Method section is that it should contain sufficient information for the reader to determine whether methodology is sound. Some even argue that a good proposal should contain sufficient details for another qualified researcher to implement the study.

You need to demonstrate your knowledge of alternative methods and make the case that your approach is the most appropriate and most valid way to address your research question.

Please note that your research question may be best answered by qualitative research. However, since most mainstream psychologists are still biased against qualitative research, especially the phenomenological variety, you may need to justify your qualitative method.

Furthermore, since there are no well-established and widely accepted canons in qualitative analysis, your method section needs to be more elaborate than what is required for traditional quantitative research. More importantly, the data collection process in qualitative research has a far greater impact on the results as compared to quantitative research. That is another reason for greater care in describing how you will collect and analyze your data. (How to write the Method section for qualitative research is a topic for another paper.)

For quantitative studies, the method section typically consists of the following sections:

- Design -Is it a questionnaire study or a laboratory experiment? What kind of design do you choose?
- Subjects or participants - Who will take part in your study ? What kind of sampling procedure do you use?
- Instruments - What kind of measuring instruments or questionnaires do you use? Why do you choose them? Are they valid and reliable?
- Procedure - How do you plan to carry out your study? What activities are involved? How long does it take?

Results:

Obviously you do not have results at the proposal stage. However, you need to have some idea about what kind of data you will be collecting, and what statistical procedures will be used in order to answer your research question or test you hypothesis.

Discussion:

It is important to convince your reader of the potential impact of your proposed research. You need to communicate a sense of enthusiasm and confidence without exaggerating the merits of your proposal. That is why you also need to mention the limitations and weaknesses of the proposed research, which may be justified by time and financial constraints as well as by the early developmental stage of your research area.

Common Mistakes in Proposal Writing

- Failure to provide the proper context to frame the research question.
- Failure to delimit the boundary conditions for your research.
- Failure to cite landmark studies.
- Failure to accurately present the theoretical and empirical contributions by other researchers.
- Failure to stay focused on the research question.
- Failure to develop a coherent and persuasive argument for the proposed research.
- Too much detail on minor issues, but not enough detail on major issues.
- Too much rambling -- going "all over the map" without a clear sense of direction. (The best proposals move forward with ease and grace like a seamless river.)
- Too many citation lapses and incorrect references.
- Too long or too short.
- Slopping writing.