How to Write a Successful MS Thesis Proposal

Although not as involved as a PhD dissertation proposal (see "How to Write a Successful PhD Dissertation Proposal", another article in this series), an MS proposal does contain a number of the same elements and it requires some of the same processes to produce. The fundamental difference is that the MS proposal generally starts with a previously defined research question and proceeds to outline how the question is to be answered. A PhD proposal, on the other hand, is required to show that the author is capable of conducting independent research. This requires the development of an original research question, a proposal for the methodology to answer it, and a plan for reaching appropriate conclusions.

Fundamental Elements

The fundamental elements of any good proposal generally consist of some or all of the following: 1) a title, 2) an abstract, 3) an introduction, 4) objectives, 5) a literature review, 6) statement of the research question, 7) a methods section, 8) results, 9) a conclusions or discussion section, and 10) a bibliography. You may also need an appendix or two. Some deviations from this may be appropriate for some subjects and some advisors; however, I will focus the discussion below on the elements named above.

Title

An MS thesis usually has a previously defined subject area so that the wording of the title is simply a characterization of the intended theme. It probably cannot be so long as a restatement of the problem, but it may contain a majority of the elements you intend to address. There are at least two schools of thought on the subject. Some prefer titles to be simple and direct, without a lot of qualifying terms or phrases. Others prefer more complicated, but specific, titles that incorporate some of the more appropriate qualifiers of the study. My advice is to solicit the opinion of your advisor and attach a heavy weight to that opinion.

Abstract

As with most scientific writing, an abstract presents a brief summary (300 to 500 words) of what is to follow, in this case, a proposal. It should include the research question to be answered, the proposed methodology and the expected results. If more than one hypothesis is to be tested, this should be stated in the abstract. It is not at all unusual to write the abstract last. You may prefer to write it first to focus your thinking, but if you do so, be prepared to change it once the proposal is finished.

Introduction

The introduction provides the background for the proposal. It is usually focused on the topic to be investigated (as opposed to a introduction to the research area in general). The object of the introduction is to convince the reader of the

importance of your problem. There are no specific formulas for doing this since it varies somewhat from subject to subject. In general, though, it will include a historical basis for the problem, some discussion of the missing pieces of information that will prove pertinent to your problem. It may or may not include a review of the literature. If it does not, a separate Review of Literature section will be required.

Objectives

Objectives can be included with the Introduction or with the Review of Literature, or they may stand by themselves as a separate section. Check with your advisor as to his or her personal preference. The objectives should focus on the goals you expect to accomplish with this work.

Review of Literature

As previously indicated, the Review of Literature may be included with the Introduction or treated as a separate section. This will probably depend upon the quantity of material to be reviewed. If the literature contains only a few articles relating to your topic, it may be best to include the review with the Introduction. On the other hand, if the amount of literature to be covered is extensive a separate Review of Literature section is probably warranted.

It is not necessary that you cite every study even remotely connected to the topic at hand (although it may be important to indicate their existence in the Bibliography). It *is* necessary, however, to cite those that you judge to be the most important. It may require some discussions with your advisor to sort out the relative importance of the articles; however, you should critically evaluate the articles and make some independent assessment of their importance to your research question.

Statement of the Research Question

The Statement of the Research Question is not always a separate section, it may be part of the Review of Literature. It is, however, an essential part of every proposal. It is at this point that the MS proposal differs significantly from the PhD proposal. Unlike the PhD, MS research questions are often formulated by the advisor, or perhaps by the student in collaboration with the advisor. The PhD proposal, on the other hand, must show clear evidence that the student is capable of formulating a valid research question independent of the advisor.

Once the research question is formulated, it must be reduced to one or more testable hypotheses. Your advisor may ask you to list some appropriate hypotheses or he may choose to work in concert with you in their development.

Preliminary Testing

It may be necessary to conduct some preliminary tests to determine the validity of certain assumptions or to establish the working boundaries of the parameter space in which you plan to work. They may also be required to establish confidence in a particular measurement technique or instrument or to select between alternative approaches to answering the research question. In any

event, presentation and discussion of preliminary data is an important part of a thesis proposal. It gives your advisor and committee a chance to evaluate and predict potential pitfalls and problems that you may not have anticipated.

Methods

The most important task facing an MS student is formulation of the research methodology to be used in answering the research question. This task may require you to consider and evaluate several alternatives, presenting advantages and disadvantages for each. It is perfectly appropriate for you to ask your advisor and committee members for advice. In the end, however, it is important that you make a choice and be prepared to defend that choice. You should not depend upon your advisor or advisory committee to tell you what to do.

It is almost certainly true that problems will arise during your study that will dictate a change of plans in your methods, which begs the question of how much detail to include in your proposal. The best answer I can give to that question is: enough detail so that your advisor and committee can see that you have sufficiently thought through the approach such that if all goes as planned, you should be successful. You should be aware, however, that flexibility is an essential element of being able to conduct research.

Do not forget the data analysis procedures in this section. It is not uncommon for students to spend an disproportionate amount of time worrying about how to collect the data without considering how to analyze the results. While is it true that the analytical procedures may depend upon the nature of the results, you should make your best estimate based on the expected outcomes.

Select the data analysis procedures based on the hypotheses to be tested (and perhaps the nature of the data) and not on your familiarity with, or preference for, a particular software package. It is usually preferable to change software packages to overcome a limitation with a particular package than to change the analysis procedures to match a given software package.

Finally, your Methods section should include a time-line for conducting the research. Your estimates may be far from reality at first, but your advisor should be able to help you bring them back down to earth.

Results

You will not have results in the same sense as a completed study; however, you should, in this section, discuss those results you do expect. Your preliminary testing may give you some clues. Other clues may come from the literature. If you could predict the outcome of a study with certainty, there would be no point in conducting the study. On the other hand, if you have not completely thought through the research question, and its expected outcomes, it may be that you will not recognize an unexpected outcome if and when it occurs. The tragedy of that will be the missed opportunity to follow up on a promising lead, perhaps one of the greatest thrills in research.

Conclusions

Conclusions should summarize your research question, the methodology you propose for answering it and briefly discuss the impact of the expected results. You may also want to speculate as to the impact of outcomes that do not conform to expectations and briefly indicate how they might affect the direction of your research.

The Process

As with the PhD dissertation proposal, it is the process that is important. Writing a proposal will require you to think about your research question in a very structured way and force you to consider things that you may not have considered otherwise. It will also focus you on the task at hand and result in a plan that will serve as a road-map for the study. You may be required to take a side road along your journey. A good road-map will make that a good deal easier.

You should expect your proposal to be revised several times as you consult with your advisor and your committee. Revisions are an important part of the process. It is not a sign of weakness or incompetence to have to revise your proposal. Carefully considered revisions will strengthen your proposal and increase your chances for sucess.

The Defense

It is not customary for an MS student to mount a formal defense of the thesis proposal; however, you may be asked to present it formally to the committee and the committee may, in turn, ask you questions about it. Whether or not you do this will generally be up to your advisor. If you are asked to present it, make sure you understand it, and all of its components, well.

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