

What's a Thesis?

HSSP Program

Brandeis University

A thesis gives you the opportunity to ask and answer an original question. A thesis then is different from other forms of writing, such as a review that summarizes knowledge, or an op-ed that expresses an opinion. Instead, a thesis helps to move a field forward and contributes in a novel way to our understanding of some aspect of the world.

Differences between Course Work and Thesis Research

Developing and carrying out a thesis is very different from taking a course. In a course, the structure is provided by someone else. The course topic, syllabus, assignments, text(s), and other materials are all developed for you at the start of the term. With them come a timetable and work schedule. Read so many pages and do so much work each week, prepare for and take so many exams, write a paper and you will complete the course. Furthermore, in fourteen weeks, the course is over, whatever you have done.

By contrast, for the research and thesis part of your undergraduate studies, you are producing all of those things yourself, under the guidance of a faculty member.

Research is not an altogether orderly process. False leads, insufficient evidence, contradictory findings, changes of goals, and other frustrations are inescapable parts of the process. They indicate that you are engaged in significant thought and work.

Because of this lack of external structure and the absence of a syllabus, you must develop your own strategy and timetable for completing the work. In addition, it is difficult to predict the amount of time needed to carry out a project. Thus, although the thesis itself is a senior-year course over two semesters, no specified amount of time has been set for the preparations leading up to that. Typically, research planning begins at the latest in the spring of junior year.

During this period you will be doing preliminary research, finding and developing your research problem, doing bibliographic research, and reading background materials.

Steps in the Research Process

Thesis research requires independent thought on your part. As a result of that process, you will be able to make an original contribution to the subject by bringing a new insight or fresh perspective to your topic.

The steps of a thesis can be broken down as follows:

- Identify a broad area of interest.
- Immerse yourself in the existing literature on your subject, both to gain knowledge of the subject and to identify a more precise area of research that needs to be undertaken.
- Formulate one or more research questions.

- Come up with a specific, testable hypothesis.
- Figure out how you will answer your question and test your hypothesis, known as your research methods.
- Obtain IRB approval, if necessary.
- Carry out your research.
- Collect, analyze, and interpret your data.
- Write the thesis.

Choosing a Research Topic

Like any large undertaking, this one is easiest to approach if you break it down into smaller steps.

Your first step should be simply to brainstorm: make a list of topics that interest you. They may be related to papers you have written for courses you took, your own reading, or issues raised in connection with your work. Let the list take shape over several days or weeks until you have a number of topics. Then go down the list and rank the topics in order of preference.

Step two often involves discussing your list with a faculty member who can serve as your thesis advisor.

At this point, you are ready to select one topic for step three. Take a blank piece of paper and write briefly what you know and what you would like to find out about the topic. It will be helpful to keep the following questions in mind:

- What has been said about this subject already?
- Which aspects of this topic remain unexplored or unresolved?
- Do any questionable or erroneous assumptions characterize the writings on this topic?
- Is there a particular method or approach to this topic that might shed new light on it?

Writing in this way tests your interest and also suggests how much you need to discover in order to begin. If your short essay proves to you that the topic is not worth pursuing, move to the next on your list of interests and write briefly again, and so on, until you feel satisfied with the topic you have selected.

Once a general research topic has been chosen, the next step should be to find ways to limit it, give it clearer focus, and shape it into a well defined research problem or question. If the problem is too broad, the research is likely to be superficial. There will simply be too much material for you to investigate. Conversely, the topic may be so narrow that not enough material exists to do it justice. You may find yourself fascinated by a particular topic but discover that there is only one article on it and that it is written in a language you do not read.

It is then wise to choose another topic.

Developing a specific research problem out of a more general topic is perhaps the most difficult and important part of the entire research project.

Asking a Question

All good research starts with a question. A question can be thought of as a matter of discussion or debate, a subject to doubt, a matter to be inquired into, or a problem. Especially important is this notion of *problem*, not with the connotation of something wrong, but in the sense of a matter to be inquired into, containing a curiosity, discrepancy, or incongruity. The world is full of such problems and incongruities, but to see them requires an active, thoughtful, skeptical mindset.

Certainly not all questions are equal: some will in fact not grow into satisfying research topics. They may be trivial or based on lack of familiarity with a discipline. One key issue you should figure out early: Has someone else already answered the question satisfactorily?

Since many theses rely heavily and even exclusively on written materials to answer their questions, the issue is not whether you can construct an answer based on information from the literature. Instead, can you find “your” question stated and answered as such, in a text, journal, or dissertation? If so, it may not be appropriate as a research topic unless you disagree with an already-stated answer.

Even if you can find several published sources that seem to address your question and posit answers to it, they may not necessarily be correct answers. You must be prepared to investigate their answers; and if you find them flawed in some way, your own research may become a refutation of these views and may substitute a new answer to the already-stated question.

Learning is rarely a straight-line phenomenon and is definitely process rather than product. Do not be impatient. A wonderful fringe benefit of testing questions for research suitability is that you get to do this exploratory reading and thus learn about many interesting areas.

Even once you have decided upon a question, the question may change and change again, as you think and read more about it. You may answer some parts of it, reject others, and discover still others.

Formulating a Hypothesis

What we have been considering is how to ask a question, have an idea, and find a topic suitable for research. It is a little difficult to separate that process from the next step, development of a hypothesis, because the entire process—from first idea to project definition, data gathering and analysis, right up to (and actually after) the final punctuation mark on the final page of the thesis—is continuous.

A hypothesis grows out of but is more than a simple question. It is an assertion, conjecture, or tentative answer to the question that is subject to verification by research.

General Approaches to Academic Inquiry

The research process can be divided into two basic types: *bibliographic work* and *empirical*

research.

Bibliographic Research

Such work is considered to be the background preparation for coming up with a question and formulating a hypothesis, involving printed and on-line matter, consisting of primary and/or secondary sources. In other words, this is the literature-based reading and thinking essential to the development and elaboration of a question and hypothesis. It can be a way of finding your question, as well as developing the next stages once you already have a question.

All thorough investigation includes a careful analysis and critique of the published sources related to your question. Your thesis director may be especially helpful here, but one of your main tasks is to acquire a thorough knowledge of the literature relevant to the research problem. Any exploration of a research topic requires an understanding of others' investigations as they appear in the relevant literature.

It should be emphasized that a simple overview or description of the literature is not sufficient or appropriate as a research project. Usually, a review of the literature is only the first stage in an investigation. It is the preamble to a hypothesis and an analysis or interpretation designed to add something to the special field of knowledge.

In developing a complete list of relevant materials, you should perform literature searches. Depending upon the topic, these may be done using electronic databases, print resources, or both. Research librarians can help candidates decide whether and when to undertake a search, as well as which databases and print resources would be best to use.

Empirical Research

Empirical research serves test a hypothesis by obtaining original data through observation and/or experimentation. In the biological and behavioral sciences, observation means that the researcher observes behavior or phenomena (associated with chemicals, organisms, cells, quarks, humans, etc.) directly. Its parallel in the humanities and social sciences is working with primary sources—living subjects, original documents, fine artworks, and drama.

Observation requires watching an event while it happens, with no attempt to manipulate or alter it in any way. Participant observation, in which the investigator joins an ongoing group in order to collect observational data not available to non-members, is a variation that requires special care to avoid a lack of objectivity. Participant observation is used most often in anthropological and sociological research although it could be used in any field of study in which an ethnographic approach is indicated.

The goal of this approach is to observe as closely and meticulously as possible, using precise, carefully operationalized definitions and specified observation and measurement techniques. In the sciences and humanities, the issues of scope of the observations, threats to validity such as investigator bias, and reactivity must be anticipated and dealt with at the outset in order to be sure that results will be reliable and valid.

In correlational research, the goal is to observe how two or more phenomena of interest co-vary. Here again, there is no experimental manipulation or intervention involved. Data may be

obtained by observation or through the use of surveys, physiological or biological indices, or any other method that is appropriate to the field of study and the research question.

Experimental research is used to test causal hypotheses by deliberately exposing participants or subjects to specific conditions prior to making observations. As above, the data may be from actual “observations” or from responses to a test or survey, physiological or biological assessments, chemical assays, etc.

An experiment is the only research method that permits you to test a causal hypothesis. Conditions are controlled so that the investigator can test the influence of one factor or another on various outcomes. Specific procedures will vary with different hypotheses, but the overall approach involves intentional manipulation of subjects or surroundings to establish cause-and-effect relationships.

Experimental research can be conducted in a laboratory or in the field. Typically, there is some artificiality in almost any laboratory situation, and there are often problems of control in the field. The experimental method, like any other research mode, inevitably has its benefits and limitations. It lends itself to easy modification; parameters imposed in the laboratory can be readily modified to suit the needs of the experimenter. On the other hand, laboratory conditions seldom replicate exactly those of the “real world.” Thus laboratory results may not be good predictors for what will occur outside the lab and have only limited value as guides to reality.

Surveys, questionnaires, and interviews are useful tools for gathering data both in experimental and non-experimental (correlational) designs. They may be used by themselves, or in conjunction with other sources of data (e.g., observations, measurements, medical records, face-to-face interviews, etc.). Some human characteristics cannot be observed directly, and self-report forms may be the only way to obtain the data necessary to conduct an investigation.

Sometimes, surveys are used without any direct contact between the experimenter and the participant. For example, surveys may be mailed to members of a particular organization or distributed over the Internet. In all cases, the researcher must be mindful of who is being sampled in order to be sure that the data gathered are valid for the purposes intended. In particular, there may be self-selection bias: those who support a particular cause may be more likely to take the time to complete the survey whereas those who are not invested may be less likely to participate.

Other approaches to empirical research include a wide range of studies that derive from bibliographical and archival research or that involve theoretical, interpretive, and phenomenological analyses. Questions that originate in biographical, historical, or philosophical issues or that focus upon intellectual history or sources of influence are associated with this category.