Project Report, Dissertation and Thesis

In academics, we come across terminology like Project, Project Report, Internship, Dissertation, Thesis, Guide, Research Supervisor and Mentor. This article explains these terminology to bring clarity amongst students and members of staff of the University.

Project and Project Report

A project is a sequence of tasks, planned from beginning to end, bounded by time, resources, defined outcome and "deliverables", and usually involves a number of people.

Basically, a project is "applied" knowledge and learning with the product being the goal. A projects is not expected to be earth shattering, or potentially even original. Projects are used to demonstrate that students can draw together their classroom experiences into an applied project. With a project, the focus is on "look what I built and I demonstrate it's working".

The students in teams are encouraged to work on academic projects during their final year of study in a college or university. In a university/college, there are many skills that cannot be taught in the classroom and such skills can only be learned through real problem solving and one such opportunity for students is academic project through which they can learn many important skills. Some of the important skills that the students learn through project work are: defining a problem upon completion will have a value, working effectively as part of a team, interacting with users, developing specification and design documents, developing prototypes and improving writing and oral presentation skills. The students are required to complete the work within a stipulated time period, using limited resources but still required to achieve the defined outcomes. The students get the required guidance from members of faculty in accomplishing the task. The accomplishments are recorded in a systematic way resulting into a project report.

The structure of a project report writing is normally described in university students' handbook.

Internship

An internship is a method of on-the-job training for professional careers. Internships for professional careers are similar in some ways to apprenticeships for trade and vocational jobs. Interns may be college or university students. These positions may be paid or unpaid and are usually temporary.

Generally, an internship consists of an exchange of services for experience between the student and an organization. Students can also use an internship to determine if they have an interest in a particular career, create a network of contacts or gain credits. Some interns find permanent, paid employment with the organizations for which they worked. This can be a significant benefit to the employer as experienced interns often need little or no training when they begin regular employment. Unlike a trainee program, employment at the completion of an internship is not guaranteed.

[http://en.wikipedia.org/wiki/Internship]

The directorate of student placements, welfare and career advice is responsible for advising students for internships.

Dissertation and Thesis

A dissertation culminates in a post graduate degree like MS/M.Tech./M.Sc./MPhil where as a thesis leads to a doctoral degree (Europe and India). In American universities, a dissertation leads to a PhD degree and a thesis leads to a Masters degree. We will adhere to the former one.

In a dissertation, it is adequate if one has a decent knowledge of the new discoveries in order to arrive at the conclusion effectively. In a thesis one has to substantiate the hypothesis with original research work. The hypothesis or the 'synopsis' should contain the gist of the new findings one has made on a subject of research. The written thesis should contain all details of original research work that one has made on the subject. (A thesis may be subjected to scrutiny for any plagiarism to determine the originality of the effort.) Another finite difference between the two is that in a thesis analysis of any existing literature is added, whereas a dissertation by itself is an analysis of any existing literature. The difference between dissertation and thesis are given below

1. You have to utilize already collected information in order to prepare a dissertation whereas thesis is based on the research conducted all by yourself.

2. Thesis is lengthier, thus, takes more time to be completed while dissertation is short; therefore, it does not consume too much time to be completed.

3. In thesis, you have to include a hypothesis based on your research work. In contrast to thesis, you should have a decent knowledge of the new discoveries in order to infer your conclusion effectively in dissertation.
4. In thesis, you have to focus on your primary argument in order to prove your standpoint to the readers. In contrast to thesis, dissertation focuses on your background work.

5. In Master's dissertation, you have to utilize the research work in order to prove your point; in case of PhD thesis, you have to add novel findings to existing literature.

6. Thesis is written as an academic research paper while dissertation is more like an academic book.

7. Data collected in dissertation is based upon the hypothetical analysis of contents whereas your Thesis is comprised of theory and argumentation based on original research.

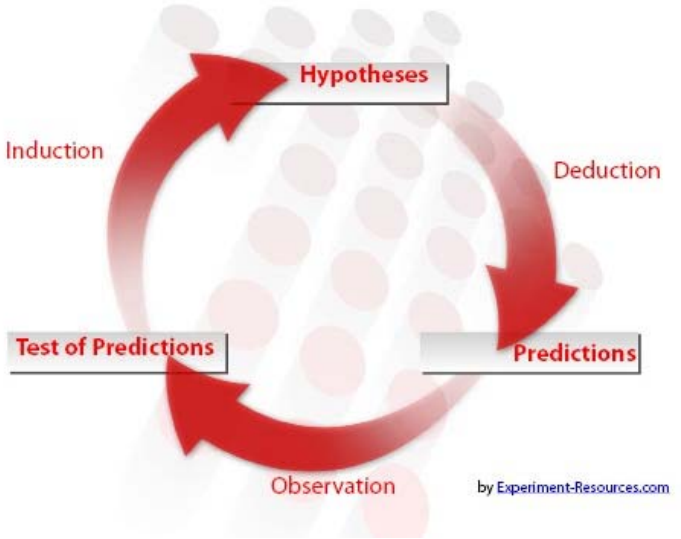
The structure of a dissertation and thesis writing is normally described in university students' handbook

Hypothesis

A research hypothesis is the statement created by researchers when they speculate upon the outcome of a research or experiment.

Every true experimental design must have this statement at the core of its structure, as the ultimate aim of any experiment.

The hypothesis is generated via a number of means, but is usually the result of a process of inductive reasoning where observations lead to the formation of a theory. Scientists then use a large battery of deductive methods to arrive at a hypothesis that is testable, falsifiable and realistic.



The precursor to a hypothesis is a problem, usually framed as a question.

The precursor to a hypothesis is a research problem, usually framed as a question. It might ask what, or why, something is happening.

For example, to use a topical subject, we might wonder why the stocks of cod in the North Atlantic are declining. The problem question might be 'Why are the numbers of Cod in the North Atlantic declining?'

This is too broad as a statement and is not testable by any reasonable scientific means. It is merely a tentative question arising from literature reviews and intuition. Many people would think that instinct and intuition are unscientific, but many of the greatest scientific leaps were a result of 'hunches'.

The research hypothesis is a paring down of the problem into something testable and falsifiable. In the aforementioned example, a researcher might speculate that the decline in the fish stocks is due to prolonged over fishing. Scientists must generate a realistic and testable hypothesis around which they can build the experiment.

This might be a question, a statement or an 'If/Or' statement. Some examples could be:

- Is over-fishing causing a decline in the stocks of Cod in the North Atlantic?
- Over-fishing affects the stocks of cod.
- If over-fishing is causing a decline in the numbers of Cod, reducing the amount of trawlers will increase cod stocks.

These are all acceptable statements and they all give the researcher a focus for constructing a research experiment. Science tends to formalize things and use the 'If' statement, measuring the effect that manipulating one variable has upon another, but the other forms are perfectly acceptable. An ideal research hypothesis should contain a prediction, which is why the more formal ones are favored.

A hypothesis must be testable, but must also be falsifiable for its acceptance as true science.

A scientist who becomes fixated on proving a research hypothesis loses their impartiality and credibility. Statistical tests often uncover trends, but rarely give a clear-cut answer, with other factors often affecting the outcome and influencing the results.

Whilst gut instinct and logic tells us that fish stocks are affected by over fishing, it is not necessarily true and the researcher must consider that outcome. Perhaps environmental factors or pollution are causal effects influencing fish stocks.

A hypothesis must be testable, taking into account current knowledge and techniques, and be realistic. If the researcher does not have a multi-million dollar budget then there is no point in generating complicated hypotheses. A hypothesis must be verifiable by statistical and analytical means, to allow a verification or falsification.

In fact, a hypothesis is never proved, and it is better practice to use the terms 'supported' or 'verified'. This means that the research showed that the evidence supported the hypothesis and further research is built upon that.

(Reproduced from {https://explorable.com/research-hypothesis})

Guide, Mentor, Supervisor, Advisor

The terms "mentor," "thesis adviser," and "research supervisor" are frequently used terms for those who supervise PhD work of students and in Indian context the term "Guide" is used. Thesis advisers or supervisor are responsible for ensuring that students fulfil university requirements for the doctoral degree and for providing advice about research directions, methods, and publication. Mentors, on the other hand, provide information beyond scientific concepts and laboratory techniques - information that is essential for professional success. Although supervisors ideally are mentors, that is not always the case. In some cases, a thesis adviser or head of a research group will provide much of the mentoring that trainees need. If not, then initiating a discussion with a supervisor about authorship criteria, the funding process, or mentoring itself might stimulate the supervisor to become a better mentor. However, whether or not a supervisor is an effective mentor, it is unlikely that one person alone can provide all that is needed. Many a time research guide gives the meaning of a well written book to guide the students on research.

This is what Cambridge University has put under PhD Students' Guide

Supervisor

As a new PhD student, you will be assigned a supervisor, who is responsible for guiding your studies. You are, however, expected to have the capacity and enthusiasm to organise your own research and to work on your own initiative. You are expected to submit written work at regular intervals for discussion with your supervisor.

Our university uses the term "Research Supervisor" to the member of the faculty who supervises doctoral research.

Prof. S.R. Shankapal