CHOOSING A RESEARCH PROJECT

- Choosing a research project is an important decision and should be made carefully. Therefore, making a wrong choice means that you will have to live with the consequences of your choice for the rest of your candidature. Choosing the wrong project may have other serious consequences.
- For postgraduate students (master's and PhD), it may be the difference between success and failure. Although postgraduate students have the option of changing the scope or even changing the topic later, this will mean that they have lost precious time during their candidature. It is, therefore, important to spend some time finding out as much as possible about a research topic before deciding on it.
- Choosing a project from a pre-determined list has its advantages as well as disadvantages.
- The advantages of choosing from a list of projects are that the objective and scope of the project have been generally spelt out and the resources needed for the project have been planned for.
- The disadvantages of choosing from a list of projects are that your choices are limited and you will likely have to compete with your peers for the projects you are interested in.
- Postgraduate students doing a degree by research may have to propose a research project or work on a partially or wholly funded research project. Developing and submitting a project proposal involves more work (Writing a research project proposal). If the project is part of or the whole of a funded research project, the objective and scope are usually pre-defined.

BASIC CONSIDERATIONS FOR CHOOSING A RESEARCH PROJECT

It is advisable to think through the following questions before choosing your research project:

1. Which field in my discipline appeals to me? For example, a civil engineering student may consider fields such as structures, geo-technic, environment, hydraulics, hydrology, transportation, etc.; a mechanical engineering student may consider fields such as machines, manufacturing, materials, robotics, mechanical and electrical services, fluids, thermodynamics, etc.; an electrical engineering student may consider fields such as electronics, power engineering, computer hardware, software engineering, mobile devices, integrated circuits, superconductors, integrated circuit design, etc. It is also common these days to carry out an inter-disciplinary project, for example, in biomaterials which is a combination of biology and mechanical engineering disciplines.

2. What type of research work would I like to conduct? Experimental, numerical, analytical, survey, software coding, design, etc.?

3. What are the resources available to me for carrying out the project? Resources include equipment, facilities, and funds. If equipment and facilities required are not available when you start the project, you may have to acquire or fabricate them, which yourself. This will likely affect the rate of progress of your research project.

4. How much do I already know about the research topic and what skills do I already have for researching it? You can answer these questions by examining the research topic carefully. Do you have some knowledge of the research topic? What is the extent of that knowledge? Do you have the skills required for the research method that will be used?

- By answering the above questions, you will be able to arrive at a shortlist of projects for further consideration.
- For students who do not have a list of projects to choose from, you would have to first identify a field within your discipline, then narrow that down to the type of research work and, finally, the research method to arrive at a potential research topic.

ADVICE FOR POSTGRADUATE STUDENTS

Relevant questions that postgraduate students should ask themselves are as follows:

1. What courses or actions do I have to take to gain the knowledge required for my research project?
2. Will the scope of the project be sufficient for the degree (master's or PhD)?
3. Will the research result in new knowledge or have impact on society? On the field?
4. What is the potential of my research field for my future career?

INTERESTING FACTS

A study by Harland et al. (2005) entitled 'Factors affecting student choice of the undergraduate research project: staff and student perceptions' showed very interesting results. The study was conducted through a survey questionnaire for students in Biomolecular Sciences at Liverpool John Moores University, UK. A total of 84 student responses and 20 staff responses were obtained. The survey revealed that students and staff broadly shared similar expectations for the project. Students rated interest in the subject as the most important factor in their choice of project. Students also rated 'the chance to use particular skills', 'the chance to extend knowledge in a familiar area', and 'the opportunity to learn more about an unfamiliar area or technique' highly, contrary to staff's expectation. A surprising outcome of the study was that about 60% of students were looking for a 'challenging project' while staff thought that only 16% of students would do such projects. The study also revealed that students see their project supervisor's role progressing during the project from one giving guidance on the project to a mentor providing academic advice and sometimes career guidance, and generally being a friend.