



iJRASET

International Journal For Research in
Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 6 Issue: II Month of publication: February 2018

DOI: <http://doi.org/10.22214/ijraset.2018.2119>

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Importance of the Research, Selection of Project Idea and Enhancement of Employability of Polytechnic Students

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Abstract: Research is useful in all the fields and departments, whether public or private. The research work is done by all age groups, whether the students or the teachers and even the humankind in order to understand the society. The research helps in being a source of mentorship which plays a vital role in the brain development of the individual. Selecting an innovative and interesting project idea for academic engineering project is a big deal for students. The whole process of picking up a good idea begins with understanding and the purpose of college/University that requires developing a project as a part of curriculum. Final year engineering student have only one year left to upgrade their skills and enhance employability. This paper highlights the importance of research for students, humankind and in education. Here are some tips on how to select project ideas for final year academic projects and how students can improve themselves and get closer to a dream job.

Keywords: Research, Project, Enhancement, students, employability, society.

I. INTRODUCTION

Research means careful analysis of the problems or to do the detailed study of the specific problems by making use of the specific scientific methods. Research can be done on any topic. In order to do a research, first of all we need to have a topic or the problem on which we can do research. For research certain steps have to be followed like observation, background research, preparation of hypothesis, conducting experiments etc. The research is important for the students because it helps them to have a detailed analysis of everything. When we have proper in depth analysis on any topic, the result comes out to be fruitful and also the knowledge is enhanced [1]. Whatever an individual reads, it somewhere and at sometime surely helps as it gets accumulated in the knowledge bank of an individual. The educational research builds patience because it is a lengthy process. In order to get fruitful results, we need to build patience and only then we will be able to motivate others. Working on a project puts all theoretical knowledge into practical use and it's a great learning experience. We are required to learn a lot of new things while working on the project. The practical experience gained will not only help with interviews but also help us be a better engineer. By doing own projects students will develop a good understanding of all principles involved which helps in higher chance of getting a job [2].

II. IMPORTANCE OF THE RESEARCH FOR STUDENTS

The research helps students to have a detailed analysis on any topic [3]. When we have proper in depth analysis on any topic, the result comes out to be fruitful. Other benefits of research to the students are as follows:

A. Knowledge Enhancement

When we do research on any topic, we get detailed information about that topic. The more the knowledge of the topic, the more successful is the research. So, in order to get good output, the student needs to do maximum research.

B. Confusion Clarification

The research helps in clarifying the complicated facts and figures. If the student has any doubt on the subject, the student must research and study on it in detail so as to remove all sorts of confusion and get the proper understanding of the content. To understand the subject and to know the unknown facts, research, detail study and full analysis is the only thing to do.

C. Learning About The Methods And Issues

Proper reading, finding is the only way by which we can learn about the methods and the current issues. Not just the current issues, rather the previous past issues can also be learned in detail through the research. The research includes various methods by which it can be done. Research is done through the work already published. The experts and the researchers had already done some of the research and the students are asked to go through that published material to know the idea and the vision of those researchers.

D. Balancing Collaborative And Individual Work

When the students do research, they get to learn how to create a balance between the collaborative and the individual work. Individual work is which the student has to do, while the collaborative work means that work which has already been done by the previous researchers. So, in this manner, the students get to know which points are to be taken into the consideration and which points are to be ignored.

E. Knowledge of Interest Area

The students also get to know their area of interest. Sometimes, the students aspire to become researchers only in their near future which is quite helpful. Research is done to know the concept from the scratch. Like, if we wish to know from where the concept has originated, then this could be done only through the research work [4].

F. Understanding of the Rationale

By engaging in the process of research, the students understand the concept in an easier manner as the rationale of the topic is known in a better manner. The research helps in being a source of mentorship which also plays a vital role in the brain development of the individual.

III.IMPORTANCE OF RESEARCH TO SOCIETY

When one does some research related to the society, the man becomes aware and also alert of the good and bad things [5]. In order to know the society's norms, policies, code of conduct, and one need to do proper research or it may become difficult to survive in the society.

A. Knowing The Culture

Every society has its own culture. In order to understand the culture of particular society, research about that society is needed. If you do not do research or read maximum about any topic, you will fail to know the hidden meanings and the concepts about the society's culture and will remain unaware about the same. So, if you are curious to know and learn something new, then the research work will help.

B. More Awareness

To make aware, reading is the key. Read the published books and the research already done by any expert. Once you have gone through the research work of great alumni, you feel like being on the top of the world as the information flows into your head.

C. Making the Right Choice for A Career

Research is needed in all fields. For even the smallest information, one needs to research and understand. For example, if we need to know about the careers with greater scope overseas, we will have to do research for that too. So, this way research is of great importance to everyone, be it a student, a traveler, teacher, professor, researcher himself.

If we wish to know the truth about anything, reading, learning and research is the only way. When we read and research on any topic, we get to know the truth, real facts and statistics and also increase our knowledge. Whatever an individual reads, it somewhere and at sometime surely helps as it gets accumulated in the knowledge bank of an individual.

D. Technology Update

Research is helpful to human to know what new is coming in the market. Also, it helps in being updated about the present scenario of the society one is living into. When a person reads the already published material, it builds trust and also enlightens one's mind. The person is able to differentiate between right and the wrong which further helps in decision making process.

So, above are the reasons which says why one should do research or what is importance of research. It is for the whole mankind, which involves individuals from every group and age.

IV. IMPORTANCE OF RESEARCH IN EDUCATION

As earlier said, research is important in all fields, in the similar manner, the importance of research in education is very vital. This is because of various reasons like:

A. *Systematic analysis and Observations*

In education, research is essential as it gives the systematic analysis of the topic. Also the objectives are clearly defined through the research process. One needs to study in a systematic and controlled manner, and this is exactly what the research work provides an individual. In the field of education, the research helps in coming to conclusion. That conclusion can be achieved by observing the facts and figures in depth. So, such in depth knowledge is provided by following various research methods only. The researchers come up with the valid predictions, theories and great results through the observations, hypothesis and the research queries.

B. *Improving Practices And Developing New Understanding*

The educational research is important for the students to improve practices and at the same time, it helps in improving those individuals who really wish to bring improvement in those practices. The educators are benefited through various researches as it helps them in having a better understanding of the subject. Along with this, it develops greater understanding related to the teaching, learning and other educational administration. The new knowledge further helps in improving educational practices of the teachers and the professors.

C. *Action Initiation and Decision Making*

Research we do should result in performing some action or practice. We should make sure that our study ensures the applicable findings so as to match the result. Research helps in performing well and also sheds away all the problems. This way, we are able to understand the role of research which further helps in decision making process. The good research requires proper time and effort. It prepares the person in taking essential decisions which further necessitates the same from all the participants involved in the process.

D. *Brings consistency in The Work*

When the work is done with full in depth analysis, it tends to be right and accurate. The process of research help brings consistency in the work, which lessens the flaws and mistakes in the final outcome of the process. The consistency is needed in all sorts of work or you might have to end up getting wrong and inaccurate result. The research takes lots of time and effort, so it is the duty of the researcher to be specific and sure with the facts so that the end result is clean and without any silly mistakes.

E. *Motivation*

The educational research builds patience because it is a lengthy process. In order to get fruitful results, we need to build patience and only then we will be able to motivate others. Also, if our research is full of right facts and figures, it will ultimately motivate others. An accurate research assists in enhancing the reader's knowledge which might not be possible for any other person.

V. CLASSIFICATION OF RESEARCH

Research can be classified in many different ways. Some major ways of classifying research include the following.

- A. Descriptive versus Analytical Research\
- B. Applied versus Fundamental Research
- C. Qualitative versus Quantitative Research
- D. Conceptual versus Empirical Research

Descriptive research concentrates on finding facts to ascertain the nature of something as it exists. In contrast analytical research is concerned with determining validity of hypothesis based on analysis of facts collected.

Applied research is carried out to find answers to practical problems to be solved and as an aid in decision making in different areas including product design, process design and policy making. Fundamental research is carried out as more to satisfy intellectual curiosity, than with the intention of using the research findings for any immediate practical application.

Quantitative research studies such aspects of the research subject which are not quantifiable, and hence not subject to measurement and quantitative analysis. In contrast quantitative research makes substantial use of measurements and quantitative analysis techniques.

Conceptual research is involves investigation of thoughts and ideas and developing new ideas or interpreting the old ones based on logical reasoning. In contrast empirical research is based on firm verifiable data collected by either observation of facts under natural condition or obtained through experimentation.

VI. SELECTION OF PROJECT IDEA

Selecting an innovative and interesting project idea for academic engineering project is a big deal for students. The whole process of picking up a good idea begins with understanding and the purpose of college/University that requires developing a project as a part of curriculum. Working on a project puts all our theoretical knowledge into practical use and a great learning experience.

A. Area of Interest And Teamwork

No one expects to develop a brand-new project that the humans haven't seen before. We should focus on improvements in the things around us. Look for improvements and things that can be done better than current solutions. Many engineers select their project without looking at their interest and select it randomly. This is totally wrong. During the selection of our final year project, first of all gather the team ideas about the final year project and then select one of them which you will feel better for you. The topic selection is always a team effort. Every person in the team should be convinced that the topic is the right one for them. If a topic is of interest to only few members of the team; the team won't be able to function together throughout the duration of the project. If you want the team to stick together and work with enthusiasm; you need everyone's consent for the topic.

B. Objective And Scope Of Project

Before finalizing selection of project, we need to know the scope of selected project. We must know whether the scope of project is within our resources? Can we do it within available resources in our college and labs?

C. Budget and Hardware / Software / Tools / Technology Needed

Budget is always the criteria that we and our team should consider when deciding on final year or third year project. Make a correct estimate and also analyze if we will ever need funding for our project. If the answer is yes; we need to start looking for the sources right away. One of the most important factors in our topic selection will be the overall requirements of the project and whether the team is comfortable with them.

D. Scheduling And Execution Of The Work

Make a list of everything that needs to be done and make a schedule for each. In order to be successful in our undertaking, we have to make sure that we follow the plan. Doing so will allow us to complete the project within our allotted time frame. Now that we have finally picked up a project, make sure that we execute and complete it seriously and put our heart into it.

E. Interaction With Advisor And Guide

Always keep in mind that there is always a set of guidelines that will determine how should go about doing things in every project. Every time consult guide to see if you are on the right track. This will greatly reduce the chance that you will fail with the project or else commit mistakes. No matter what kind of project you have chosen to do, problems are inevitable. Do not get frustrated whenever a problem strikes [6]. Have enough courage and determination to complete the project no matter the gravity of the issues you encounter. Believe that you have the potential to finish the work in within the allotted time.

VII. ENHANCEMENT OF EMPLOYABILITY

If you are a final year engineering student, you have only one year left to upgrade your skills and enhance your employability. Here are some tips on how you can improve yourself and get closer to a dream job. One question that you are sure to face after graduating is 'Tell us more about you'. Interviewers will ask you this question [7]. You can use this question to direct the interview to your advantage. Prepare well in advance for answering this question. Identify and develop the areas of strength that will set you apart from others. In your answer to the question, you can talk about these strengths and put yourself in a much better position to bag the job [8].

The following tips will help you become a valuable employee for an organization.

A. Advantage of Academic Projects

Interviewers will ask you questions about your academic projects. Their main motive is to check how good you are at practical skills. Your project gives you an opportunity to put theoretical knowledge to actual practice. So be honest with your academic project and make the best out of it. Do not try to copy other project ideas. The practical experience gained will not only help with interviews but

also help you be a better engineer. By doing your own projects you will develop a good understanding of all principles involved. Also, you have a higher chance of getting a job.

B. New Technology and Practical Experience

Engineering technologies are always evolving. Almost every day a new technology comes into scene. Internet is the best source to keep a watch on recent developments in technology. Remember, your education does not stop after graduation. Try to widen your knowledge base. Read more books, blogs, news articles etc. Recruiters look for achievements. As a student a good way to prove achievements is by showcasing the work you have done in projects. Take part in technical training to develop practical skills. These experiences help you to work in a team, be a problem solver, develop creative thinking and find the fun in engineering. Don't just take up courses or workshops restricted to your engineering domain. Try to take part in interdisciplinary activities. This is because when you become a professional engineer, you do not just have to deal with one subject. Brush up on all basics of engineering concepts from previous years. Recruiters check your strength in fundamental concepts. Prove that you follow the correct approach to learning by demonstrating your basic knowledge.

C. Non-Technical Skills

Prepare for aptitude, reasoning tests by practicing daily from online resources. You can improve communication skills by reading books and conversing with more people. Ask questions, seek out answers, compare options and make decisions. Keep things in perspective and learn from experience and practice. Take up courses for improving conversation skills, aptitude skills and other soft skills.

D. Network

Make sure that you stay connected with all your professors and peers at college. Get in touch with professionals who do what you want to do. Spread your network through online and social media. Networking will open up opportunities in the future.

VIII. CONCLUSION

Research can be done on any topic. In order to do a research, first of all you need to have a topic or the problem on which you can do research. For research certain steps have to be followed like observation, background research, preparation of hypothesis, eventually conducting a simple experiment. The research is important for the students because it helps them to have a detailed analysis of everything. When you have proper in depth analysis on any topic, the result comes out to be fruitful and also the knowledge is enhanced. The person is able to differentiate between right and the wrong which further helps in decision making process. The educational research builds patience because it is a lengthy process. In order to get fruitful results, you need to build patience and only then you will be able to motivate others. Selecting an innovative and interesting project idea for academic engineering project is a big deal for students. The whole process of picking up a good idea begins with understanding why the college/University requires developing a project as a part of curriculum. Recruiters look for achievements. As a student a good way to prove achievements is by showcasing the work done in projects. Take part in technical training to develop practical skills. These experiences help to work in a team, be a problem solver, develop creative thinking and find the fun in engineering.

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