

Aptitude Skills for Employability: A Case Study of the Aptitude skills Training Analysis for Engineering and management Students in India

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Abstract - Most of the engineering and management students in India take campus recruitment training to get placed in their dream company. Almost every company in India takes online or offline test in their recruitment process. This test comprises of multiple choice question which are based on their aptitude skills. This study is mainly conducted to understand the impact of teaching aptitude skills in the classrooms of engineering colleges to improve the performance of many engineering graduates in India. It has been identified that many third year students are still lacking confidence to face their campus placements that are to take place in their final year of study. As students learn various domain skills in their college but they lack in quantitative aptitude and logical reasoning skills which is very essential from campus recruitment point of view. The student has to clear this test to move in the further process where their domain knowledge and soft skills is tested. The paper helps to understand the need and bridge the gap of the aptitude skills training given to engineering and management students which helps students in clearing the online or offline test of campus recruitment process.

Key Words: Quantitative aptitude skills; Logical reasoning skills; Employability; Training; Development; effectiveness

1.INTRODUCTION

Aptitude skills are very important component to measure the competence to do a certain work at a certain level. Companies which come for the recruitment takes aptitude test of the students which help them to understand the intelligence quotient and working efficiency. Aptitude is a natural talent which can be improved or developed by giving proper training. An effective training program can enhance employee skills and enable them to perform better in their job. Aptitude test are used to determine which tasks that individual is more skilled at performing. It also helps in determining which job roles is best fit for employee or applicant. Aptitude tests inculcate many factors like Numerical reasoning, verbal reasoning, abstract reasoning, speed,

accuracy, and other such abilities. Through Aptitude test various management skills are also tested such as Time management, stress management, Decision making skills, ability to change etc. Training on aptitude skills simply does not mean that a student has to be trained on method of solving questions but also to train them about how and which question should be attempted. Learning Aptitude skills also helps students in building their mental ability.

In India, student generally spend three or four years in completing this graduation, which is nearly clearing more than 40 exam paper but still when it comes for the selection in campus they fail.

The reason being various skills which are required in the industry is not thought to them in the college. . Padmini(2012) pointed out that if communication skills are not considered for qualification / selection, the percentage of employable students will raise from 7 to 13%. In a major surprise, more than 80% of the students do not meet the requirements on the problem solving skills. To fill this gap the study has been conducted to understand the importance of Quantitative aptitude and logical reasoning training on engineering and management student in campus placement. The study helps us to understand how the training on quantitative aptitude and logical reasoning to engineering and management students can increase their chances of getting placed in the company.

Daggubati Vasanth Choudary(2015) defined skills as the proficiency of being able to do something practically rather than just knowing theoretically how to do it. For learning, and acquiring skills, knowledge tells how to do and when to do. Skills are the capacities needed for doing a set of tasks. The „skills gap“ is the difference between the skills that employers want and those that are available from workers looking for a job.

Aptitude Skills is important to engineering and management students as they are future engineers and managers who will face and will be required to solve

various complex situations in which a quick and complex decision is required.

The traditional methods of teaching are still followed by many Aptitude trainers in engineering colleges. In most cases, Aptitude trainer teaches only formula and method to solve the question. Aptitude skills are tested in most of the competitive exams conducted across the country. Online Aptitude test is one of the most important sections in all the Competitive exams, Entrance exams and Campus Interviews in order to grab Government jobs as well as IT Jobs. Quantitative aptitude questions are important for Merit listing and for Final Selection in various exams like UPSC Competitive Exams, Railway Competitive Exam, IBPS Exam, Bank Competitive Exams, GATE Exam, Common Aptitude Test (CAT), MAT, GMAT, CSAT, CLAT, ICET, SSC Competitive Exams, SNAP Test, KPSC, XAT, GRE, Defence Competitive Exams, L.I.C/ G. I.C Competitive Exams, TNPSC, University Grants Commission (UGC), Career Aptitude Test (IT Companies) and etc.,. In spite of putting all the efforts by the trainers, many students are not able to clear the written test in campus placement.⁹

Aptitudes tests help reveal the natural talents, strengths, and limitations that we all have. The process of assessing people is very complex and involves many different factors. Organizations are using aptitude testing increasingly frequently to improve their recruitment and development processes. When you test people's aptitudes, you look beyond what they've done in the past and you assess what they have the potential to achieve in the future.(mindtool.com) These online aptitude tests help you recognize your inherent strengths and talents, and accordingly guide you to a career path or course that best suits you. And the prospect of you being content and successful in the career becomes high if you have an inborn aptitude for it. (sonalidheri 2016)

Aptitude tests

There are a variety of tests that can determine your aptitudes. Some will test for whether you have a combination of aptitudes that can indicate potential in a certain field, and some test for individual aptitudes such as mechanical or spatial. It is difficult to cheat in an aptitude test, therefore, they are considered reliable by most of the interviewers. These tests give the interviewer an idea of the natural abilities, strength, and weaknesses of the interviewee.(Targetstudy.com,2018)

Some companies may give you an aptitude test as part of the hiring process to see if you have the necessary strengths to do the job. You can also take aptitude tests on your own time or at a career center.

Here are some of the common aptitude tests:

- **Watson Glaser critical thinking test:** This test assesses your critical thinking skills. It will measure your ability to understand information and come to a logical conclusion.
- **Logical reasoning tests:** A logical reasoning test examines how you understand relationships between shapes and patterns.
- **Situational judgment tests:** These tests will measure your problem-solving abilities with specific workplace scenarios.
- **Verbal reasoning tests:** Verbal reasoning tests gauge how you gather information from a paragraph or short passage.
- **Inductive reasoning tests:** In an inductive reasoning test, you will have to look at patterns and determine the next step in the pattern based on logic.
- **In-tray exercises:** This test is also known as an e-tray exercise. It determines your ability to prioritize work-related tasks.
- I had prepared the test and conducted it online on the skill assess platform. Skill assess is an online test platform build by one of the technical trainer of the college. This online Test contains 45 questions and question are asked to check the aptitude skills of students Some of the subject tested through this online test are : arithmetic, algebraic, decision making, logical, verbal and non verbal reasoning, spatial skill, intuition, general awareness, grammar, short term memory, geometric, and Numerical ability.¹⁰

Methodology

- Most of the training given to the students on aptitude skills requires following skills to be developed. Most of the students are confused as aptitude test looks same as taken in various competitive exams but Students should be trained properly and make them understand that aptitude test taken in campus placement process in many ways different from those taken in competitive examinations. Some of the points which makes these two test different are:
- 1) Competitive aptitude test is among thousands or millions of students where competition is tough as compared to campus aptitude test as

only some hundreds or thousands students appear in this test.

- 2) In competitive aptitude test students from all regions with different skills and background take test which makes the competition tough as compare to campus aptitude test where mainly students from the college or some particular area take place,.
- 3) Age group variation is much in competitive test as compared to campus aptitude test.
- 4) In competitive aptitude test, the students had to score more to get good college or position whereas in campus student had to score more than cutoff to clear the round.

A training program was conducted to train 400 engineering and 100 management students to bridge the skill gap and to understand the impact of training. The study was done in a private engineering college, in central India from January 2020 to February 2020. The study was done on 400 engineering students and 100 management students before their campus placement. 400 engineering students are divided into 4 batches of 100 each and 1 batch of management of 100 students. Students were given training on aptitude skills on five days a week for 1.5 hrs daily. Two aptitude tests were conducted to find the difference in their performance before giving the training and after getting the training.

All the students were trained to develop the following skills:

- 1) **Theoretical Knowledge:** Rigorous training was given to the students to develop the concept and logics in the field of quantitative aptitude and Logical reasoning. All the students gone through formula and practice questions. There are 18 topics on quantitative aptitude and 10 topics on logical reasoning. Each topic was thought in the class for about 1 hr and then 30 min was given on practice question on same topic. The 18 topic on quantitative aptitude and 10 topics on logical reasoning are given in appendix A.
- 2) **Time Management Skills:** Students were thought to solve questions keeping time in mind. In online test, questions are to be solved within time limit. Short tricks and alternate method were thought to solve the questions, so that students can save time on each question.

Students were thought to spend how much time should be spent on reading question and how much too solve it.

- 3) **Stress Management Skills:** Stress management skills are tested in aptitude test. Students are given many questions to solve in a limited time. A kind of stress is created to solve many questions in fixed time. Stress comes if the students finds question difficult or lengthy. Students are thought how to tackle such questions and solve them by applying various short tricks
- 4) **Decision making skills:** Students while solving questions has to take decision regarding the selection of question or number of questions he can solve and decision about which question should be solved first or rather which question should not be attempted. Students are thought which question should be attempted first and which should not be.
- 5) **Smart Work:** Students are trained to work smartly. In training, students are trained about the purpose of taking the test. They are trained and make them understand that all questions are not given to solve. The purpose is to clear the test i.e. to clear the cutoff. Instead of solving all the questions, students should focus on the question which he can solve easily.

Study tool: All the selected students were informed about the purpose of study and verbal consent was taken. A structured training program was designed and aptitude test was conducted for all 400 engineering students and 100 management students before the training and after giving them training on quantitative aptitude and logical reasoning skills.

The process of this study comprises online aptitude test, classroom training, class observation and written comments of students. The online test comprises of 30 questions on quantitative aptitude and 30 questions on logical reasoning. Total time to solve the 60 questions was 60 min. online test was conducted in a private engineering college of Indore district

Table 1: Students' demographic information (total no. of students 500, State: Madhya Pradesh)

Gender	Age Group	Qualification	number of students	Branches /Specialization
Male	20-21	B.Tech	180	Computer science/Information Technology
Female	20-21	B.Tech	220	Computer science/Information Technology
Male	23-24	MBA	110	Finance/Marketing
Female	23-24	MBA	90	Finance/Marketing

Gender	number of students	Branches /Specialization	Percentage
Male	110	Finance/Marketing	27%
Female	90	Finance/Marketing	29%

The following Table 3 shows the Responses of students about their learning experience in Training Sessions

Table 3

Questionnaire Item	agree (%)	disagree (%)	Indecisive (%)
Learnt new Concept & logic	79.4	15.6	5
Confident to clear aptitude test	87.5	6.5	6
Trained on Time management skills	70	19	20
Improved on stress management skills	69.3	23.2	7.5
Improved Decision making skills	83	10.1	6.9
Aptitude skills were sharpened	97.5	1.1	1.4

During and after completion of the surveys, the researcher took feedback of around 25 engineering students and 10 management students to understand their learning experience and the methodologies used. A full list of feedback questions is available in **Appendix B**.

Data Analysis

Data from the online test and feedback from the students was analyzed both quantitatively and qualitatively. Data was extracted from the 60 question asked in the online test. The data has been presented in terms of percentage.

Results

The following table.2 shows the result of Aptitude test taken before training for Engineering and Management students.

Qualification	number of students	Branches /Specialization	Average Marks in Percentage
B.Tech(Male)	180	Computerscience/Information technology	31%
B.Tech(Female)	220	Computerscience/Information technology	34%

The following table 4 shows the result of Aptitude test taken after training for Engineering and Management students

Qualification	number of students	Branches /Specialization	Average Marks in Percentage
B.Tech(Male)	180	Computerscience/Information technology	81%
B.Tech(Female)	220	Computerscience/Information technology	88%
MBA(Male)	110	Finance/Marketing	67%
MBA (Female)	90	Finance/Marketing	69%

Discussions

Engineering college going students are comfortable in their stream and most of them are comfortable facing their stream questions in the campus placement. But most of the companies which come for the recruitment go through three steps which are written test, Group discussion and personal interview. S. EZHILAN(2013) pointed out that, Training and development are extremely crucial to the employees, the organization and their effectiveness. Training evaluation has been the main focus of many studies in the last decade. Besides students being good at technical skills, they need to be aware of the employability skills required at their future workplaces. Aptitude skills are very important for the further engineers and managers. The problem is engineering students are not properly trained in their colleges to face the written test taken in the campus recruitment process, due to which student get rejected in the process. This study found that through proper training in aptitude skills student performance in the written test of campus recruitment can be increased. Most of the engineering and management college either do not provide such training or the college trainer does not have knowledge about aptitude skills required to

clear written test asked in campus recruitment. Engineering and management student at their college level are not trained properly to face this challenge. More specifically, the Aptitude trainer need to be trained in training proper aptitude skills and they should be exposed to the challenges faced by professionals in various industries. Teaching aptitude just to solve the questions will not be able to bring in desired changes unless the Aptitude trainers upgrade their teaching methodologies to bridge the gap between the college and the workplace. Engineering and Management College in India are more focused in their traditional way of teaching and they are not changing as fast as change required by the industries. College students and professor are even not aware of the current skills required in the industry and if they know then also they are not making sufficient efforts to bring the change in the society. Students should be thought in more creative way. Importance and practical usage of those skills should be thought to them. Aptitude Skills should be developed in the college and to create awareness about the importance of aptitude skills in written test and workplace activities, the aptitude trainer need to provide a lot of information about company expectation and purpose of taking written test. Students want to learn more about employability, it has become obligatory for the trainer to read and share facts about aptitude skills required by companies. As many students feel less confident about their aptitude skills, unique methods of training must be introduced in classes to boost self-confidence. Motivation and encouragement is the most important things in the training sessions. Students who are weak in the numerical skills should be taken more doubt clearing sessions. As, Written test in the campus recruitment is very important round, more focus should be given to provide proper training to the students. Most of the engineering college and even the universities are not emphasizing on developing aptitude skills among students. University had asked college to conduct soft skills classes to develop their skills for campus recruitment process but only few of them are conducting the classes to develop aptitude skills.

Until and unless students does not clear written test, he is not eligible to move for further round, where his soft skills and other skills are tested. I feel this can be one of the reasons that many students who are good in their communication and technical skills are not able to clear their first round i.e. written test in their campus recruitment process. College and universities should give equally importance in developing aptitude skills

among students. A proper and systematic training program can increase the performance in the campus recruitment process.

CONCLUSION

This study examined the importance of Aptitude skills required by the engineering and management students studying in India and the impact of training on the performance of students' in Aptitude test. The findings pointed out that the big gap between the training given and the performance levels of engineering students can be reduced by giving proper training and how this can affect the selection of thousands of engineering and management students in campus placement. In addition, the study revealed the training need for Aptitude trainer to train the engineering students for employability. Moreover, the trainer must work more on developing different skills required to clear aptitude test and chart out an effective methodology for aptitude training. The trainers must go beyond traditional method to solve the questions and understand the difference in the training given to the students preparing for campus as comparison with students preparing for competitive exam.. If the proper Aptitude Training is given as per the need, the gap between the students clearing written test could be reduced and the employability skills of students will be enhanced.

8. Limitations and Scope of the Study

This study was conducted to streamline the aptitude training given to the engineering and management students in colleges of India. This study was conducted in Indore District, located in Madhya Pradesh India. The aspects looked into were the quality of training, methods and strategies used in training, the students' feedback, problems and proposed solutions to problems. Though the engineering students are more concerned about their career in rural area but aptitude training in the college should be more efficient and training should be given, taking campus requirement in mind rather than taking it as a general aptitude test. To improve the performance of the students, Further more innovative ways can be found especially to clear aptitude test.

REFERENCES

- 1] [Online] Available: https://www.mindtools.com/pages/article/newTMM_43.htm
- 2] [Online] Available: <https://targetstudy.com/articles/importance-of-an-aptitude-test-in-education.html>(2018)
- 3] Sonalidheri ,How aptitude test can help in your career planning ! Retrieved from <https://resume.naukri.com/articles/how-aptitude-tests-can-help-in-your-career-planning/>(2016)
- 4] A. Clement1 & T. Murugavel: English for Employability: A Case Study of the English Language Training Need Analysis for Engineering Students in India English Language Teaching; Vol. 8, No. 2; ISSN 1916-4742 E-ISSN 1916-4750 Published by Canadian Center of Science and Education(2015)
- 5] Daggubati Vasanth Choudary : THE IMPORTANCE OF SOFT-SKILLS TRAINING FOR MBA STUDENTS AND MANAGERS Volume 4, Issue 11 (November, 2015)
- 6] S. EZHILAN: SOFT SKILLS TRAINING PROGRAMME: EVALUATION OF ENGINEERING STUDENTS' EXPECTATIONS AND EXPERIENCE. Vol.1.Issue.3.(2013)
- 7]Padmini: Education Vs Employability- the Need to Bridge the Skills Gap among the Engineering and Management Graduates in Andhra Pradesh. IJMBS Vol. 2, Issue 3(July - Sept 2012)
- 8] David F. Lohman : An Aptitude Perspective on Talent: Implications for Identification of Academically Gifted Minority Students. Journal for the Education of the Gifted. Vol. 28, No. 3/4, (2005)
- 9]] [Online] Available <https://www.udemy.com/course/aptitude-test-all-competitive-exams-quantitative-aptitude/>
- 10] [Online] Available <https://www.indeed.com/career-advice/career-development/what-is-aptitude>

Appendix A: Topic covered under quantitative aptitude and logical reasoning:

Topic (Quantitative Aptitude)

- 1) Number system ,2) Linear equations,3)problem on ages,4)Percentage,5)Profit & loss,6) Simple interest and compound interest
- 7)Ratio&Proportion,8)Partnership,9)Average,10)Mixtures & alligation,11)Time and work,12)Pipes and cistern,13)Time, speed and distance,14)Boat and stream,15)Permutation&combination,16)Probability,17)Geometry,18)Data Interpretation

Topic(Logical Reasoning)

- 1)Number and alphabet series ,2)Coding and decoding,3)Blood relation,4)Directionsense,5)Syllogism,6)Analytical reasoning,7)Clock and calendar,8)Cubes and dices,9)Non-verbal reasoning,10)Data Sufficiency

Appendix B. Students Semi-Structured Interview Questions

- 1) How comfortable are you with aptitude skills to clear the written test in campus recruitment?
- 2) Were you trained for clearing aptitude test ?
- 3) Are you trained for time management skills?
- 4) Are you trained for stress management skills?
- 5) Did you learn anything new about aptitude and its context applications?
- 6) Are you trained for decision making skills?