

Engineering and Communication: Towards the Integration of Critical Thinking into the Professional Development of Engineering Students

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Abstract

In this paper we will address an important but neglected aspect of the professional development of engineering student's i.e. promotion of good Communication Skills along with Critical Thinking Skills. With the conspicuous presence of English as a Lingua Franca in every vein of successful growth of a professional, Engineering students find themselves always standing on the horizons of 'Classic Dilemma' of How to get selected. We will try to focus on the need of communication skills not only to get jobs but also to showcase the potential in an organization to gain permanent position.

Critical Thinking Skills are the classic "habits of mind" that are the characteristic goals of a liberal education [1]. In General, students who think critically can

- Distinguish facts and opinions
- Understand the perspectives of people.
- Identify the implicit assumptions and biases.
- Examine the evidence for proper deductions.
- Evaluate the strengths and weaknesses of others arguments

Reverberating with the spirit of sound Communication Skills, the engineer students can aspire to gain confidence of marveling the epitome of critical thinking.

With lot many things to say and not knowing how to say today's engineers are trying to acknowledge the role of communication skills in all the lanes and by-lanes of their professional growth [2]. With the demon of interviews always peeping in towards even the third year of studying engineering courses, the pressure to perform engulf the students night sleeps even. While this lament is too broad a generalization to apply to every engineer, it is sufficiently incriminating that it concerns many. In the last decade engineering education and industry have requested assistance from communication educators. Responding to increased attention on the changing expectations for practicing engineers and an attendant need for better communication skills, these teams of engineering and communication educators have been working to incorporate speaking and writing in engineering education [3].

Communication Skills can definitely be categorized as the life –support system for engineers who should have the ability to initiate and process change by giving expression to the new ideas they cater in their bosom. Beyond learning to communicate about science, many students need to develop informal communication skills in general, such as the ability to express themselves clearly and understand others' responses. Students must augment their field-specific knowledge and experience with a variety of other skills if they are to make the best use of their talents

The world of a professional engineer intersects with law, business, politics, ethics and all the different pieces of the modern world. There is a lot more to it than the narrow scope of things students tend to encounter in a typical college class Organizations require staff who are multi skilled, have problem solving skills, can deal with less routine tasks, are IT literate and capable of independent learning. In short

companies want the people with more social competence who can harness their minds to think critically. Educators always give a lot of hue and cry that the sole purpose of education is to make the over all development of the personality of the students. Communication skills are the ladder which engineering faculties need to hand over to their students to reach the zenith of their careers [4].

Effective Communication Skills give a glimpse of the critical thinking abilities of the students. Generally, students sit in their interviews in their pre final year or final year wait to be hand- picked by top firms across the country in their campus recruitment drives. The crucial days of recruitment drive can make or break their career as it can mean the difference between stepping out of college with or without a job. Top-of-the-line companies usually participate in campus recruitments in the hope of getting some bright and talented students. And it is up to the student to make them want to hire him .

Students are to prepare a well-crafted résumé in advance, taking care to avoid some of the common errors. Provide accurate and appropriate information about your qualifications and interests. On-campus interview essentially means that they will be compared to others in your batch/Institute. So, they think critically and figure out what will make them stand out from the rest and make that the highlight of your résumé. It could be highest marks, extracurricular activities, position of authority on campus, unusual hobbies, past achievements, etc. The students are suggested to form study groups with trusted friends before placements to prepare together and cover basic ground. And since some interviews involve group discussions, group work, etc., teamwork will stand them in good stead.

The students do their homework by looking up the companies concerned on the Internet, reading company literature and speaking to people in the industry. They also attend the pre-placement information sessions like presentations, seminars and talks [5]. There may be a good chance to find out various career paths, benefits and inside details as recruiters often disclose what they are looking for in candidates in such sessions. The students interact informally with company representatives and thoughtfully ask meaningful, structured questions. They also keep résumé copies handy.

A lot of mental and physical stamina is required to pass though lengthy and exhaustive rounds of interviews. Interviews are the moments when they are to expose their critical thinking capacities. They are to be well prepared with a small self-introduction to highlight their qualifications, interests and strengths to the interviewer. Your appearance and dress are critical, in that you should fit into the culture that you are interviewing for by dressing appropriately. Make sure that your clothes are neat, clean, and freshly pressed. Your hair should be well groomed, and you should wear conservative colors. Your shoes should be shined. You should avoid excessive jewelry, flashy colors, excessive makeup, and strong perfumes or colognes.

Most interviewers greet applicants with a handshake. Don't let your handshake sabotage you. Be sure that your handshake is firm and that your palms are not sweaty. Let the interviewer invite you to be seated as you enter the interviewing room. Your eye contact is very important because often it helps to make you appear more believable to the interviewer. Your body language also sends a message of confidence and sincerity. In addition to the firm handshake and eye contact, be sure to have a well-balanced posture, an open, relaxed facial expression, and a firm voice, and to use appropriate gestures when emphasizing key words [6].

Trust yourself enough to answer questions in a natural and honest way. Keep your answers in the positive. When you're relaxed and answered questions in an honest way, you'll be able to think on your feet and provide answers that the interviewer wants to hear.

Ask yourself, “What skills, experiences and achievements do I have that will make me an asset to this company?” If you can answer that question while going through the interview process, you will be one step closer to landing the job you want. A successful interview is one in which you leave feeling that you know the interviewer and the job, and the interviewer leaves feeling that he or she knows you. In the interview, an employer has three objectives: (1) to gather relevant information about your qualifications; (2) to assess how your qualifications match the requirements of the position; and (3) to present the organization very positively to you. Your objectives as a candidate should be to communicate information about yourself and your qualifications clearly and accurately and to seek relevant information about the particular job, position, and employer.

As an interviewee, you should know your skills, experiences and achievements and be yourself. This way, you don’t go into the interview sounding like someone who memorized a canned answer out of some book. Just relax and be natural [7].

The first 30 seconds of the interview are very important. The first impression is next to impossible to change. As the saying goes, "You never get a second chance to make a first impression."

The interviewing process can be broken into the following parts:

1. Preparation
2. Establishing Rapport
3. Talking About Yourself
4. Talking About the Organization
5. Close-out
6. Evaluation

You are part of the first five segments; the sixth takes place after you leave. The typical screening interview usually runs 30 to 45 minutes. The interviewer reviews your information and opens the interview. Next, the interviewer gathers background information on your education, experience, and geographic preferences. The next phase in the interview is to identify your career interests, strengths, weaknesses and areas of improvement. The interviewer will then "sell" his or her place of business and allow a question-and-answer period for you to become more informed. Lastly, he or she will close the interview [8].

Be yourself during the interview. Bear in mind that the interviewer chose to interview you. Let this knowledge and your interview preparation bolster your confidence throughout the interview. During the interview, take notes. Inform the interviewer at the beginning of the interview that you would like to take some notes to help you in the question-and-answer session later.

The interviewer will evaluate the skills that you have polished during your education, extracurricular involvement, and co-op and summer experiences. The areas that will be evaluated include communication, initiative, interpersonal ability, planning and organization, accountability, resourcefulness, work orientation, and negotiation skills. Be a good listener, but certainly not reticent about asking penetrating questions.

Conclusion

During the interview, sell yourself. Show what you can do for the employer, give complete answers, show that you're a team player, ask for the job, and never apologize for any of your liabilities. Present them from a positive viewpoint if they must be discussed. Project confidence, but never imply you can do everything or work miracles. You should avoid arguments and discussions about race, religion or politics. After the interview, follow up with a thank-you note and keep in constant touch. If you are called for a second round of interview, accept the call only if you are seriously considering a position with the employer. Weigh your options and seek advice, if necessary, before finally accepting a job offer.

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