Factors Influencing The Professional Growth Of Bio Science, Engineering And Technology Graduates

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Abstract: Employers and societies more and more ask for capable and ready to work graduates, possessed with some amount of competences when getting into the workforce. But they want for very skilled employee has been mounting, the difference between capabilities of graduates and educations searched by the employers remain to be a thoughtful concern among many nations. The factors that affect the growth and sustainability of the graduates are solely due to lack of non-technical skills such as team spirit, communicative skills, decision making and solving the problems that exist in course of time and creative skills. The important subject addressed by the current study is to identify the factors that influence the science and technology (S&T) graduates' in respect to fitness for purpose. The findings showed that the S&T graduates voiced their opinions on the importance of non-technical skills which are essential for their survival and development in their respective professions. The vision-2020 has located science and technology as significant as the educational policies are often observed as effective forces behind economic growth in industrialized countries.

Key words: Communication Skills, Critical Thinking Skills, Problem Solving Skills, Team Skills, Leadership Qualities, Science and Technology

1. INTRODUCTION

All of us agree that English occupies the most important role in the professional growth. Employers also commonly feel that the understanding of different sorts of writing styles could be learnt in the work culture. Moreover, they pointed out essential non-technical skills: the skill to communicate in other dialects, self-confidence and a virtuous attitude. The choice of courses appears to be connected with the streamline of secondary school education. More number of students really desired to study more professional courses on pharmacy, engineering, medicine, etc [1]. To be a successful graduate, it is recommended that the higher learning institutes must inculcate the students with practical knowledge which is demanded in

the job markets, additional knowledge in the analytical instruments, attending more career related programmes, real training in the industries and most wanted and valuable transferable skills such as communicable skills, problem- solving, leadership qualities and critical thinking skills. The insights of the graduates allow the perceptions into actions that can be considered to hold more capable science and technological engineers in the labour force.

The prerequisite skills

1. The employers say steadily that, to become successful at workplace, most of the people in future should enhance their personal and rational qualities beyond those conventionally made clear in programmes of learning in higher education. They are even looking for interactive and personal qualities along with their technological skills. These are mentioned below:

2. The core interactive qualities are communication skills, teamwork and interpersonal attributes. These are mandatory for communication either formal or informal, with a broad range of persons who are either internal or external to the specific organization. It is indispensable to be in a position to relate at ease with all sorts of people in the organisation and the external stakeholders as well. At the same time, it is also essential to balance the relationships even though situations change.

3. Personal qualities are attitudes and capabilities with intellect, knowledge, readiness and capacity to learn and stay learning, skill to identify things out, readiness to take menaces and show creativity and adaptability to reply, self-confidence, and self-management. These personal qualities permit the graduates to fix into the work culture, enhance the ideas, take up steps and responsibilities and have the aptitude to deal with change (Harvey,1997).

4. The technological and the organisational variations over the years have additional ICT skills, team-working spirit, suppleness, and flexibility. Besides, problem solving skills has become creative problem solving and risk taking has turned out to be one of the vital aspects. On the contrary, there is no much emphasis on knowledge and far more on readiness to stay learning.

2. REVIEW

A study carried out by [7] stated that the language skill is considered to be one of the important skills that are wanted by the companies in Oman. The other skills are computation, coordination, and good personality.

The technical graduates and engineering aspirants are supposed to be acquainted in technical aspects, but inappropriately they are not to the core of non-technical aspects such as communication skills [5]Majority of engineering graduates are concentrating more on their academic qualification rather than preparing themselves with non-technical or employability skills [5, 6].

According to OECD DeSeCo Project [2], competency is highly considered rather than information and skills, and emphasis the possibility to meet intricate demands, by depending on and organizing psychological properties in an exact context.

Personal wish and a choice of parents and societal prospects appeared important. Acquaintance due to undertaking science streams in high school and pleasure in earlier school science learning was a general inspiration for picking science (Rodrigues et al., 2007. Students' aims in terms of possible careers are often designed in previous high school (Quinn and Lyons, 2011).

The Dearing Report (NCIHE, 1997) shows a wide-ranging list of skills and claims that the higher education must know its goal to be the finest in both research and teaching by mutual agreement with faculty members, students, employers and society in common. The detailed report even helps for further progress in a range of what it terms as key skills during higher

education – communication (oral and written), numeracy, the use of communications and information technology, and understanding how to learn', which possibly connects it to think critically.

3. METHODOLOGY

Interviews were carried out with the employees from different organisations. They are the alumnae of a reputed engineering college who are holding various positions at different levels in different sectors. Certain questions were posed to them to get the responses for the survival and development in the field of science and technology. These were asked to determine the perspectives of various stakeholders on the status of English and other non-technical skills in safeguarding the employment, the result of an obvious regional dialect on employability and the demands and requirements of industries.

The following table shows the list of skills pointed out by the interviewees for their survival in the field of science and technology.

Desired skills of the graduates in present study

Table 1 List of Skills Pointed Out By the Interviewees

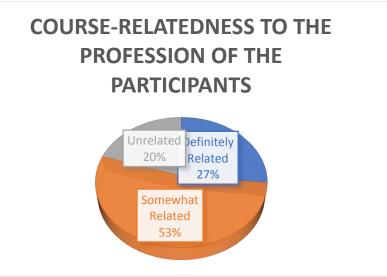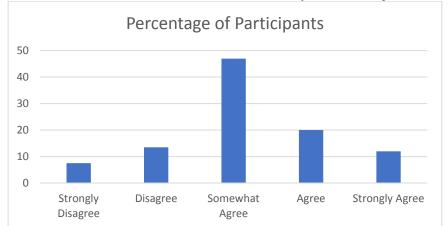| S.No	Participants	Skills
1	P_1	Presentation and marketing skills
2	P_2	Communication skills and critical thinking skills
3	P_3	Command over English, possessing leadership and managerial skills
4	P_4	Team skills, research skills, and interactive skills
5	P_5	Independent thinking, practical knowledge, communicative skills
6	P_6	Communication skills, creative skills and some practical skills
7	P_7	Good communicative skills, other wide-based generic skills acquired through training such as problem solving, importance of team work, subject skills
8	P_8	English writing skills and critical thinking skills
9	P_9	Understanding and perseverance, oral communication skills
10	P_{10}	Team skills and communicable skills
11	P_{11}	Problem solving skills, acquiring skills to speak and write fluently
12	P_{12}	Managerial skills, somewhat good at writing and speaking
13	P_{13}	Ability to transfer the information with right English and critical thinking skills
14	P_{14}	Decision making skills and interactive skills (oral and written English)
15	P_{15}	Leadership skills and English writing skills

The communication skill was considered as the most essential generic skills according to the results of the study. 15 graduates were interviewed (P_1 to P_{15}) and put forth some of the skills that are essential for their respective fields. The other major skills which were recognised by most of graduates during the interview were critical thinking skills and problem-solving skills. The graduates in any of the area of work have started recognising that being capable of interacting good at English enables their knowledge and tuning to the culture of their work.

Apart from the emphasised skills, the other skills pointed out by some graduates as vital were: team spirit, marketing skills, and management skills. Leadership skills were scarcely stated.

4. RESULTS AND DISCUSSIONS

- Is your current occupation related to your degree?

COURSE-RELATEDNESS TO THE PROFESSION OF THE PARTICIPANTS

Unrelated 20%

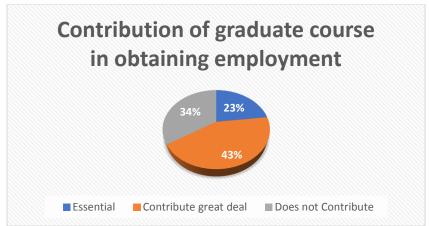Definitely Related 27%

Somewhat Related 53%

The question examined the course-relatedness to the profession of the graduates. 27% of the participants got job that was definitely related to the course they learned. 20% of the participants got jobs unrelated to their studies. 53% of the participants thought that their job was somewhat related, as depicted in the pie chart.

▪ What is the extent of satisfaction with your current job?
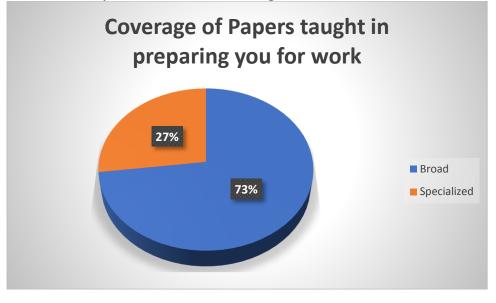
Percentage of Participants

For the question, the highest percentage was somewhat agreed that they were satisfied with the current position. The next in the row was agreed that they were satisfied with their employment. Next was the least strongly dissatisfied with their jobs.

▪ What is the extent to which your degree assisted and contributed in obtaining your current (most recent) employment?

Contribution of graduate course in obtaining employment

- Essential
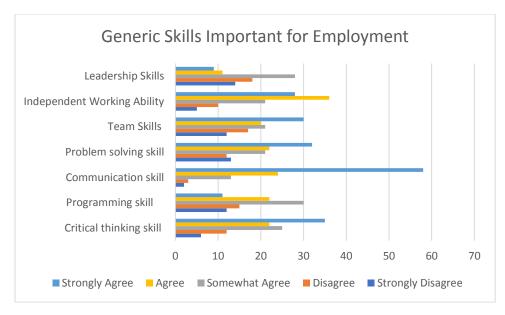- Contribute great deal
- Does not Contribute

About 43% of participants in this study registered that their degree was directly or indirectly pertinent to their academics, while 23% recorded that their position was not pertinent to their studies.

- How do you feel about the coverage of the papers taught in preparing you for work? Would you describe as broad or specialized?

Coverage of Papers taught in preparing you for work

- Broad
- Specialized

- Do you think the following generic skills are important for your job? Please tick in the appropriate box for each skill.

Generic Skills Important for Employment

This question tries to examine the kinds of generic qualities that the graduates notice to be significant for their chosen fields. The communication skill was noticed to be the highest from the above chart. Next to that, critical thinking skills and problem-solving skills were placed in the row. Team spirit was in the next position. The other skills occupied certain percentages and were shown in the chart.

I.   RECOMMENDATION FOR HIGHER EDUCATION

The higher education cell can support the graduates to be improved and sufficiently prepared for the job markets by taking the following recommendations:

[a].   Analysing the syllabus of the programmes to make sure that the graduates are prepared with skills and knowledge prerequisite by the industries and the employers. Considering that, the soft skills have to be introduced. The medium of instruction through English for learning should also be strengthened.

[b].   The major disciplines such as bio engineering, civil and other pertinent streams must be certain that the graduates hold wider knowledge. However, attention should be given to formulate the syllabus which has wide ranges in a stipulated time of three to four years.

[c].   Marketing and managerial skills can be incorporated in the courses of science and technology graduates who are not equipped for the commercial world, since their training is related to science and technology.

[d].   Imparting appropriate and up-dated practical knowledge, the graduates can also board on research efforts and do postgraduate studies in respective fields either science or other streams.

[e].   Preparing the graduates with better language skills in applying and attending for jobs such as resume writing, interview and communication skills.

5. CONCLUSION

The graduates in this study have stated the necessity for improving communication skills and critical thinking skills at higher levels of education, to have frequent visits to industries and to be trained practical skills. Without the practical knowledge, the graduates would be hard enough to tackle the problems in basic skills for handling the equipment. The higher education cell must therefore promote their technology and prepare with up-dated techniques. This confirms that the undergraduates are up-dated with science knowledge and technical

aspects. In addition to that, some graduates accomplish to get positions as research assistants and the graduates who have planned to continue their post graduation, found that they need to understand a lot of novel techniques at work. Hence, the graduates who possess non-technical skills will definitely have an opportunity in getting good jobs. The educational institutes on the other hand, must provide graduates with non-technical skills.

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