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Role and Importance of Communication Skills for the Engineering Students

Dr. Ollala Srinivas[1], Dr. S. Sowjanya[2], Jayasree Musuku[3], *K. S. S. Pranathi Sree[4], G. Pushpa Ragini[5]

[1]PGT English, Telangana Minorities Residential Educational Institutions Society, Hyderabad, Telangana, India.
[2]Assistant Professor, Department of Management Studies,
Rajeev Gandhi Memorial of Engineering and Technology, Nandyal, Andhra Pradesh, India.
[3]Asst. Professor, Dept. of English (BS&H), Vignan Institute of Technology and Science, Deshmukhi, Hyderabad, Yadadri Bhuvanagiri, Telangana, India.
[4]II B.Tech., C.S.E., Siddhartha Academy of Higher Education, (Deemed to be University), Vijayawada, Andhra Pradesh, India.
[5]Asst. Professor, Dept. of English (BS&H), Vignan Institute of Technology and Science, Deshmukhi, Hyderabad, Yadadri Bhuvana Giri, Telangana, India.

***Corresponding Author: K.S.S. Pranathi Sree**

ABSTRACT

Every year, colleges over this nation allow a large number of students with their engineering degrees in their chosen discipline. Eventually, these gifted, astute young fellows and ladies are relied upon to move into the business (or advanced education) and show the aptitudes and capacities in arithmetic and the physical sciences they have worked so long to get. Regardless of various papers composed and numerous presentations made all through their school career, a considerable lot of these individuals won't have the capacity to impart their engineering skill by means of written communication.

This article tries to highlight the significance of writing expertise in engineering instruction. Making utilization of late writing concerning the subject, and cases of not exactly satisfactory written work, the case will be made that some premium ought to be put in writing ability as a method for better get ready students to work in today's working world.

Keywords: ability, communication, English, engineering, skills, student, writing,

INTRODUCTION

Industry today needs engineers who are actually capable, as well as can compose well. The most widely recognized grievance about graduating engineers is their poor written work aptitudes – in 1997, the Society of Manufacturing Engineers (SME), expressed worry that recently procured engineers could not impart well, particularly in the territories of "Specification and Report Writing".

Consider the accompanying selection, taken from the students' venture report about a procedural change:

I have viewed results that look promising and conclusive to a clean and safer power supply to the sensitive equipment used in the lab.If I can recover the wasted energy from the discharges of these power cells and inject them back into the main grid saving this company enormous revenue yearly. I project a payback interval as short as 4 years to recoup the cost of installation. If this would be implemented plant wide the cost will be blinding but the savings would also be rewarding. This plant wastes so much stored energy every day and I can see such a great benefit to the company and the environment if we just would return this back into the grid. Free energy wasted every day. What a loss!

Student's reports are, as the case above shows, inadequately composed, overflowing with incorrect spellings, linguistic and utilization mistakes. In addition, there are issues with redundancies and disgraceful sentence structure that make the work scarcely fathomable. Though numerous colleges endeavor to ingrain writing abilities through required courses, for example, English synthesis or specialized written work, little advance is confirmed, the same number of seniors graduate writing in an indistinguishable manner from when they were first year recruits.

With the expanded obscuring of limits among orders brought on by new mechanical developments, it is always basic that engineers have the capacity to discuss their thoughts with different experts. In engineering students, move from the academic community to industry, their correspondence, media shifts from the agreeable language of conditions and

images to that of the composed and speech verbiage used to portray the ramifications of their estimations. Regularly this correspondence is a perceptive, yet non-specialized group of onlookers, which introduces a significant test.

Foundation Studies on Writing in the Engineering Curriculum

The engineering academic world has expanded its understanding that it must support solid language and composed relational abilities in its educational modules to create aggressive experts in today's commercial center. Pinelli led a study that analyzed technical communication skills of aerospace engineering students, according to honing experts in the industry. The after effects of this overview fortified the significance of language and written communication experiencing significant change from academic to mechanical groups and offered recommendations for encouraging people's move from students to passage level engineering experts.

Perceiving the need to enhance the language and relational abilities of engineers amid their academic arrangement, Artemeva, et al. developing a course tailored to engineering's particular correspondence needs and difficulties. Significantly, these writers quickly distinguished that "the primary test is to perceive that these students as a rule convey with them imperviousness to the thought of engineering as a calling that requires literacy." The setting of a designing class in which the specialized works are of the students' picking based upon their topic was an intriguing intends to defeat the test. In particular, the course gave the setting whereby students could secure the logical aptitudes and systems important to coordinate into a teach particular talk group. The creators contend that such an academic approach can be utilized to outline, correspondence courses custom fitted to the requirements of any teach gave the accompanying conditions are met: assignments are associated with course topic; a Dialogic domain – one in which numerous perspectives are displayed and investigated – is given; and the way of assignments permits students to expand on their learning encounters in the course.

These studies, and various others, progressively recognize that engineering students require language and composed relational abilities to prevail in the working environment. Nevertheless, students' composed work items unmistakably exhibits that they have not disguised the need. Maybe this is on account of students have not given the segments of their educational programs that address writing an indistinguishable significance from them would courses indispensable to their major, notwithstanding going so far as to believe that written work is a practice that is saved for piece class alone. For instance, a Mechanical Engineering students would most likely observe a course in thermodynamics to be more essential than a course in specialized composition on the grounds that the previous is seen to be all the more specifically fixing to their degree plan and general desire to perform ably as a mechanical designer.

Advance, students may not see the need to sharpen their language and relational abilities since this need has not been imparted to them. The vast majority of engineering educational modules is worked around the language of arithmetic. Students are instructed to investigate troublesome issues as far as conditions and pertinent scientific standards and operations, with answers communicated numerically. Students take an interest in research facility courses, with the imperative toward the fulfillment of an examination that they compose a report, yet these reports are occasionally evaluated for the level of writing expertise showed. Frequently research facility colleagues who are non-local speakers of English evaluate these reports. For a hefty portion of these capable people, the dominance of legitimate English language structure and development is an auxiliary or tertiary thought in light of their accomplishing the levels important to travel abroad in the fruition of their instruction. In this manner, in light of the fact that their comprehension of English piece is simple, they rather concentrate on the numerical substance of lab reports, without giving important input with regards to the composition style of the work.

Academic writing for engineering students

It is important that students studying engineering disciplines are given the opportunity to develop written and oral English communication skills, as more and more industries and businesses have become multinational (Grasso & Burkins, 2010; Martinez, Wells, Hannigan, Peterson & Stevenson, 2011) and communication skills have been identified among the top skills required by employers in many fields, including engineering (Archer & Davison, 2008; Morgan & O'Gorman, 2011). Moreover, as English has become the lingua franca of business and industries (Montgomery, 2009; Jenkins, Cogo & Dewey, 2011), not only in English-speaking countries but in our increasingly globalized society, good communication skills in English are necessary not only for native speakers of English but also for people for whom English is a foreign language (Riemer,2007; Idrus, Salleh & Abdullah, 2011).

Since the purpose of writing in higher education is threefold, encompassing assessment, learning and providing the students with the means to enter into a disciplinary community (Coffin, Curry, Goodman, Hewings, Lillis & Swann, 2002; Newell-Jones, Osborne & Massey, 2005), students need to be exposed to the types of writing that are typical in the discipline that they have chosen to study. In the current study the students all studied engineering and such students are expected to eventually be able to write documents in the genres that professional engineers use (Martinez, et al., 2011). These include project proposals (Speight, 2012), questionnaires and company newsletters, and longer "feasibility, recommendation, progress and empirical research reports" (Martinez, et al., 2011, p. 221). Therefore, it seems appropriate to introduce engineering students to these types of writing and the 'literacy tasks' mentioned above can be incorporated into such writing. This type of writing also ties in well with project based

learning (PjBL) and problem based learning (PBL) which are advocated as means of instruction in engineering colleges. (Graham & Crawley, 2010) because much of the work in the field of engineering involves working on projects. In courses using these approaches students are exposed to and produce written work within the context of projects that may last for a few weeks or span throughout a semester, "so that students build gradually into particular forms of writing" (Coffin et al., 2002, p. 7). The purpose of the projects is typically to solve a problem or to do small-scale research. Academic literacy skills can be taught through these approaches by embedding the writing into actual projects on subject matter courses or by integrating project knowledge and the learning of writing skills into a course on academic literacy skills, as is the case in the current study.

The communication skills of engineering undergraduates and graduates

Engineering undergraduates and graduates have been criticized for lacking in good communication skills (Riemer, 2007; Drury, Airey & O'Carroll, 2010) regardless of whether English is their first language or not. There appear to be two main reasons why such skills have not been a focal point of learning in engineering colleges. On the one hand, it has been assumed that students entering engineering colleges have already acquired these skills at school (Russell, Lea, Parker, Street & Donahue, 2009) and developing the skills is therefore not necessary. On the other hand, helping engineering students to improve their non-technical or soft skills, such as communications and business skills has not been considered a priority in engineering colleges. At a curricular level subjects such as academic literacy skills tend to be pushed into the background in discussions concerning the credit hours that students' degrees consist of, with priority given to subjects concerning mathematics, sciences and applied sciences. At the classroom level, some engineering instructors tend to especially avoid any academic writing on their courses due to its unpopularity among students and because it is seen to consume time from engineering subject matters (Cilliers, 2012).

Nevertheless, graduating students of engineering have to meet the requirements of their future workplaces. They need to acquire a good knowledge of their discipline in HE and they also need to have good critical thinking, problem solving and academic literacy skills (Gunn, Hearne & Sibthorpe, 2011). Research shows that the latter types of skills can be acquired successfully in courses in higher education where the skills are either integrated (Davies & Cousin, 2002) or embedded into disciplinary knowledge (Wingate, Andon & Cogo, 2011; Bean & Watanabe, 2011), and some engineering HEIs have already adopted such practices. A good understanding of the indicators affecting the development of first year engineering students' academic literacy skills can be used to enhance student learning in HE and to assist students in the kinds of written and oral communication skills eventually required in the workplace, too. Knowledge of the indicators may also be utilized in curriculum and syllabus design regardless of whether academic literacy skills are taught as curriculum infused skills, by integrating them into other courses or in dedicated courses. In addition, to discover how the indicators affected students, I investigated whether there were any differences in the ways successful and non-successful students' academic literacy skills developed as evidenced by analyses of their written work and approaches to completing written assignments. It also helped me to gain a better understanding of the onstruct of academic literacy skills.

Instructive Activities to Improve Undergraduate Engineers' Writing Skills

In the event that the charge of designing instructors is to create tomorrow's populace of architects who are completely able in a perpetually evolving working environment, then, implies must be trying to help our students in this basic region. It is not sufficient just to relegate a written work task (or an accumulation of assignments) to show students great composition aptitudes. The lion's share of students has different learning styles; besides, most students don't have learning styles perfect with such a hypothetical task. Therefore, designing instructors needs to concentrate on showing writing in behaviour that can be learned by students.

As per Felder and Silverman, there are eight learning styles: detecting, instinctive, visual, verbal, dynamic, intelligent, consecutive, and global.5 It is vital that the showing material/assignments/exercises on a given subject address numerous learning styles with the end goal that these activities have a more prominent potential to affect the greater part of the students. A posting of four potential exercises, and their learning style targets, intended to empower writing expertise advancement in the engineering educational modules are given beneath. The accompanying are not proposed as an answer for the issue, but rather as systems that will permit teachers to fuse writing into their educational modules, and survey students' written work aptitude:

1. Appoint an in-class writing movement around a engineering point (dynamic);
2. Appoint students to compose a clarification shielding their answer way to deal with a scientifically escalated issue (intelligent, detecting, consecutive);
3. Give models of compositions put together by past students (on the present topic) and allocate the students to evaluate the work in class (dynamic, visual);
4. Appoint the students to clarify, in writing, how a work procedure would be performed in the work environment and how the outcomes would be better reported (verbal, natural).

It is likewise imperative that suitable criticism be given to students. One proposal in such manner is to join forces with English offices or writing focuses, to such an extent that showing partners from engineering divisions can evaluate

composed work (e.g., lab reports) for substance, while English showing collaborators can survey the work for style, clarity, and pieces. Past work with this model of criticism has demonstrated linguistic mistakes in research center assignments to decrease fundamentally through the span of the semester while writing styles show stamped improvement.



CONCLUSION

Engineering students don't have to show writing as a different subject, however a similar premium that puts on students' critical thinking capacities ought to be put on guaranteeing they are skillful to express their thoughts by means of composed correspondence. The strategies offered to thus try to bring writing into the engineering educational programs; future research will be coordinated towards understanding the viability of these and different techniques in creating entirely able communicators.

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