

Assignment 1

SAI HARSHA KOTTAPALLI

CS17BTECH11036

a. What are the key barriers in accessing engineering education in India?

Inequality within India plays a major role in denying access to engineering education. Surveys prove that this problem is only getting worse, which is a bad thing. There are many responsible factors like social origins of students which include gender, caste and status.

Socioeconomic status and low social mobility only keeps the barrier from getting any smaller. Rural residence and rural education are much more critical. We can check via survey results that almost 5% of students come from rural backgrounds which is not even close to the actual distribution of population. Ruralness here is defined by the place of residence and schooling during the four stages of the student's education(primary, middle, high school and higher secondary or pre-university) and the status of their parents. This is more common among individuals belonging to historically underprivileged groups, particularly Scheduled Castes and Scheduled Tribes and in some cases those who are children of agriculturists.

Hence, we can say that lack of good primary and higher education are key factors. This directly affects the opportunities available to the student.

The quality of education is also very important. As a matter of fact, to qualify for the most higher tier colleges one needs to English as the medium of instruction or at the very least as a second language. With the distinction of class culture, such linguistic skills are a necessary component for access. Teacher absenteeism is a critical factor as this directly has an effect on the quality of education received by the students. In rural areas, either no teaching is taking place, or the teaching is insufficient for the student to compete with those from urban areas. To access premium engineering colleges like IIT and NIT, special coaching has to be done for

the respective entrance exams which again is difficult to attain due to financial constraints, poor infrastructure and lack of knowledge.

Even after getting into one of the lower tier colleges, for accessing engineering education, the quality of teachers also matter. Usually almost all Tier 1 teachers have PhD degrees, but in Tier 4, there are only a handful. This indirectly has a major role on college reputation and hence the employment prospects of students

Lack of information resources holds back many capable and hardworking students. If parents are uneducated then in most cases the child doesn't have anyone to monitor or guide him toward proper education, while also lacking the emphasis the educated parents put towards education. In most cases, such students don't have anyone to offer career choices or the motivation for them. Lack of inspiration due to absence of role models is also related to this. Any of these above discussed factors might make the student's aim unclear and unachievable.

Multiple liabilities raise the barrier cumulatively, making it virtually impossible for such individuals to move ahead.

b. What can be done to make engineering education more equitable?

Engineering is growing in societal importance, yet access to a high-quality education in science and engineering remains determined in large part by an individual's socioeconomic class, racial or ethnic group, gender, language background, disability designation, or national origin.

The main objective is to provide all students with a fair opportunity to learn. Generally, most rural government school's teachers are not well equipped to teach. There should be harsher punishment for repeated teacher absenteeism. The teachers should also be tested on their ability to motivate and set role models instead of just testing their knowledge. It has to be made compulsory that every school needs to have English at least as a second language if not the medium of instruction. The teachers must also emphasize on the nature of competitive exams they need to take so that they are not left behind by those of urban areas.

Most students regret that the path to engineering was known to them too late, hence, we need to deal with the lack of information resources. Various

means of information resources like libraries, good television channels like Discovery, Internet, etc must be made available free of cost.

Government should make it compulsory for teachers to be well versed in all the career paths so that they can give a good roadmap to students based on their interests. They should also conduct some workshops, or provide a hotline regarding career choices for everyone so that even if people are uneducated, they would have a reliable source of career advice. Education department must make it necessary to have career counsellors available such that they are reachable even from the rural areas. It should also support the availability of current resources from various specialized career counsellors, career guide books, employment exchanges, NGOs, religious organizations, or any such institutional resource while also making use of the internet, television and newspapers.

Though many colleges do have reservations for underprivileged groups, particularly Scheduled Castes and Scheduled Tribes, it might be the case that such individuals aren't aware of this. Hence, this must also be handled accordingly. These families as well those with educated parents may not have enough faith that so many years of additional education, beyond schooling, would result in some additional benefit or improvement in quality of life. Government must treat this with high priority so that the distribution of the underprivileged in colleges also rises unlike the current scenario. To shorten the gender difference in the college distribution, slight reservation for women may also be required.

As the survey states, board exams don't necessarily measure an individual's aptitude and inherent merit, therefore, the structure needs to be changed. Especially for rural areas, these individuals are unable to reach their full potential. Questions based on aptitude must be made compulsory, so that the cream of the crop can be identified for further financial support for coaching to entrance exams for top Tier institutes. Regular monitoring and better supervision from school principals and supervisors can also help identify these. Out-of-the-way funds should also be provided in such cases.

Hence, the state needs to play an active role if engineering education is to be made more equitable and that there is a greater equality of opportunity.