
APS1018 History and Philosophy of Engineering – Final Team Projects, Fall 2013**The Shortage of Engineers in the UK and the Lessons Learned for China**

The recruitment of engineers is important to both the UK and China. Nowadays, there is a huge shortage of engineers in the UK, and this is one of the obstacles which affects the British economy. There are many factors contributing to this problem and these factors may also be obstructions to development in China. This report focuses on engineering education, the image and status of engineers, female engineers, and how they cause the shortage of engineers in the UK and China. After the analysis, some recommendations are provided to alleviate the shortage of engineers in these two countries.

The recruitment of engineers is necessary to the development of the UK and China. The “shortage” of engineers in China is different from that of the UK. This report is going to identify the problems that have led to the shortage of engineers in both countries, and to provide some possible recommendations to solve the problems.

To sum up, the biggest problem in the UK is most students do not want to choose engineering subjects for their Major when they enter universities. There are two reasons for this: The first is the low status of engineers in the UK; another reason is that teachers do not encourage their students to become engineers. In China, engineers have a high status and China consequently has many engineering graduates. Therefore we believe that some merits of China should be introduced into the UK.

Chinese textbooks introduce famous Chinese engineers and their great contribution to society. In this way, students realize the importance of engineers and want to be as successful as those great predecessors. Therefore we recommend that British government establishes regulations to require primary schools, middle schools and high schools to introduce famous British engineers and their accomplishments.

In China almost every year, government and many enterprises hold awards ceremonies to honour those engineers who have made great contributions to Chinese society. That is one reason why engineers have a high status in China. Therefore we recommend that the British government and enterprises should establish more award systems. In this way, engineers' status and image will be improved.

The biggest problem in China is poor education quality and there are three main reasons for this: Firstly there is a discrepancy between supply and demand; secondly, Chinese engineering education is short of practical and soft skill training; the third reason is most universities in China put little emphasis on ethical education. For this problem, we will give several recommendations for improvement:

1. In *Status and Outlook of Engineering Education*, Zhu Gaofeng points out that competition between universities should be enhanced. The pressure of competition will cause some poor universities to be eliminated, but most universities will make progress. Therefore the education quality in China will be improved.
2. In *Status and Outlook of Engineering Education*, Zhu Gaofeng points out the weak link between enterprises and universities is the main reason why students do not have enough opportunities to go to enterprises for practice. Therefore we recommend that this link should be enhanced. For example, universities can provide research results to enterprises in exchange for internship opportunities.
3. Based on our own experience, University of Toronto does a good of teaching ethics and soft skills. For example, in History and Philosophy of Engineering, students have to make a presentation every two weeks, which dramatically increases their presentation skills. Professors of this course also teach the importance of ethics in engineering and we believe this kind of course should be introduced into engineering education in China.