The Wilted STEM: A Talent Shortage in Norway

By: Jaylyn Johnson

An advertisement made by Norway Communicates to encourage education

A Global Talent Shortage

We are becoming increasingly dependent on technology and its practical functions: using a cell phone or driving a car. So what happens when the talent pool that creates, designs, and perfects these systems runs dry? This question is asked by companies worldwide that look for young talented engineers to stay productive and innovative, but they cannot find enough workers with the skills that they are looking for. This is also an issue in Norway. Without sufficient talent production and efficiency, Norway will have difficulties to remain competitive internationally.

Approximately one in three companies worldwide, or thirty four percent, are failing to fill the voids that the recovering economy and lack of talent has left on the market. This is a slight increase from 2009 when thirty percent of companies were reporting these difficulties (Manpower Group 2012). This lack of talent was felt in all industries, and engineering and information technology have been most affected.

A Talent Shortage in Norway

The reported rates of the talent shortage in Norway declined from forty percent in 2008 to eleven percent in 2011 (Manpower). The global average for talent shortage in 2012 is 34 percent; while companies surveyed in Norway reported a 22 percent shortage (Manpower). This shows that while Norway is experiencing an increase in need for talent (from 11 percent in 2010 to 22 percent in 2012), its talent needs are lower than some other countries that are well known for innovation and education like the USA and Japan (49 and 81 percent reported a lack of talent) (Manpower 2012).

The global talent shortage affects countries in different ways. Norway particularly needs workers in engineering and technology. According to offshore.no, Norway is in need of 7,000 engineers in the petroleum industry alone (Oland 2011). This is surprising when you look at the employment rate of engineers in Norway: "the pool of unemployed graduates is growing while there is a chronic shortage of science graduates and especially engineers" (Oland 2011). Promoting engineering and technology fields to prospective students would be a way to increase the number of engineers, as well as matching skills with labor demand. However, an increase in student seats in these fields demands a large commitment from the Norwegian government.

Bibliography

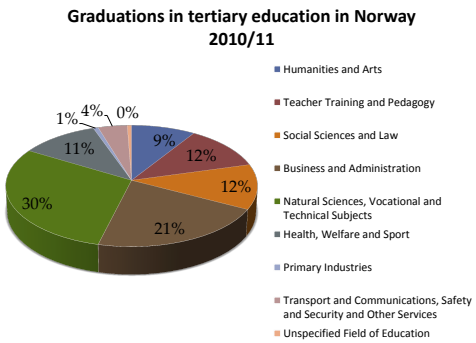
"2012 Talent Survey Shortage Survey Research Results".
http://files.shareholder.com/downloads/MAN/2027238263x0x571882/ac2b52c1-55d8-4aaa-b99e-583bd8a82d0c/2012%20Talent%20Shortage%20Survey%20Res_US_FINAL%20%282%29.pdf Accessed September 30, 2012
"Faculty of Science and Technology".
http://www.ntnu.no/ntnu-ny/faculty_of_science_and_technology/ Accessed November 7, 2012.
"In hiring season, IT firms rue lack of talent".
http://www.techgig.com/tech-news/editors-_____pick/In-hiring-season-IT-firms-rue-lack-of-talent-4754?trackbr_id=1T0&ab=20121031- 389 days before October 23, 2012. Accessed October 23, 2012
My Little Norway. http://mylittlenorway.com/2011/04/the-norwegian-education-crisis-_____introduction/ Accessed November 14, 2012
NOKUT." Evaluation of engineering degree programmes in Norway 2008".
http://www.nokut.no/Documents/NOKUT/Om%20NOKUT/Om%20NOKUT/Evaluering/Evaluering/NGEVA/Rapporter/NGEVA_NOKUT_Summary_english.pdf. March 4, 2013
OECD 2004. Science, Developing Highly Skilled Workers: Review of
Norway. http://www.oecd.org/dataoecd/9/0/34480251.pdf Accessed November 14, 2012
Oland, John. "Norway lacks 7000 engineers".
http://www.offshore.no/2011/03/13/753_norge_mangler_7000_ingenioerer. March 11, 2011. Accessed October 23, 2012
"Positive Impact of Global Financial Crisis on Indian Economy".
http://www.indiamba.com/Faculty_Column/FC1232/FC1232a/fc1232a.html
Accessed October 1, 2012
"Positive Impact of Global Financial Crisis on Indian Economy".
http://www.indiamba.com/Faculty_Column/FC1232/FC1232a/fc1232a.html
Accessed October 1, 2012
"Programs of Study". http://www.ntnu.edu/int/studies Accessed October 24, 2012

Abstract

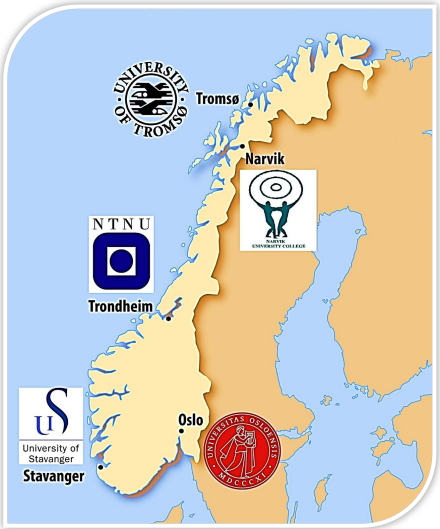
The lack of talent in science, technology, engineering, and math (STEM) is a global problem. This talent shortage can deter technological gains and innovation. The shortage has sparked many countries to create initiatives to recruit, retain, or create talent. Norway has an abundance of natural resources, and has a potential to be a center for technology and innovation. However, Norway is struggling to find enough talent to fill the need for STEM professionals. This poster investigates why STEM graduates in Norway do not meet the qualification requirements of companies. It also studies the role of Norway's tertiary system in the national talent shortage. The research shows that while the Norwegian education system excels in some areas, the programs for STEM majors fail to teach the skills that engineering employers need.

.

Universities of Norway



Stats from SSB Norway



Conclusion

Sometimes it is easy to forget the impact of technology on our daily lives. It is extremely important that young talent will be able to keep pace as our technology keeps evolving rapidly. This is also a reality in Norway. Norway's graduates do not meet the job market's current intellectual demand of engineers. However, when compared to other countries, Norway's talent shortage is about half of the United States or India (both 48% reported shortage). The reports on Norway show that while Norway's education system excels in other areas, it has few STEM majors and they do not receive the type of education that companies need. While the system currently offers theory-based learning, companies demand a focus on more innovative, technical problem solving skills. Nonetheless, efforts to encourage students in STEM majors would address the engineering shortage. The standards of today's technology require an ever more rapid development of young minds. The question is: How can Norwegian companies and educational institutions continue to keep up?

I would like to acknowledge my mentor, Dr. van Riemsdijk, and team members Matt Cook, Benjamin Todd, Grace Levin, and Scott Basford for their diligent efforts and assistance. I also want to thank Jerry Collins, Will Fontanez, Brenna Elrod for their contribution to the poster.

An example of a Norwegian class room

Education in Norway

The Norwegian Institute of Science and Technology (NTNU) graduates roughly 80 percent of all students with advanced engineering degrees in Norway. NTNU enrolls 20,000 students, and approximately 8,000 of these are engineering students. In 2009/2010, Norway graduated 3,113 students in the STEM fields nationwide. The University of Oslo offers classes that are specifically geared toward technology, while the University of Stavanger offers course in Petroleum Engineering and Structural Engineering. Stavanger is the center of Norway's Oil and gas industry and a leader in technological innovation. The University of Stavanger states on its website, "The Faculty is in some areas within petroleum research among the world's best. The research of increased oil recovery in carbonate fields is a case in point" (University of Stavanger 2012).

An OECD review of Norway's tertiary education in 2005 found the following shortcomings: "delays in graduation; student dropouts; the need for a stronger emphasis upon quality teaching and upon student outcomes; and the need for a better follow-up of students" (OECD 2004:12). The report also noted that cultural factors delay graduation in Norway. Young Norwegian students not only start college later comparatively to students in other countries but they also decide to graduate later. More students decide "to travel; to work; to do community service; and, although less commonly now, for males to do military service" (16 OECD). Therefore, only 4 percent of undergraduate students are under the age of twenty (OECD 2004: 16).

The OECD reviewers noted that Norway made a noticeable improvement in several areas of its education system. The Norwegian government created a Quality Education Reform Council and the Norwegian Agency for Quality Assurance in Education (NOKUT) to improve the education system. Norway is proud that its education is accessible to a broader range of its citizens; more than many other OECD countries. As far as STEM majors in Norway, OECD concludes that there could be a problem but that they did not look at the quality of education specifically. The OECD also noted that there is a need for a boost in interest in the STEM fields. "Tertiary education in Norway has undoubted strengths. However our main conclusion is clear enough: there is much more to do in universities and university colleges if Norwegian tertiary education is to retain its position of strength in the years ahead and to contribute what is needed to Economic development" (OECD 2004: 70).

NOKUT Norwegian Agency for Quality Assurance in Education

Nokut is an organization that establishes education standards.

This material is based upon work supported by the National Science Foundation under Grant No. 1155339. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.