

Employability of international engineering graduates – Case: Results of National Engineering Graduate Feedback Survey and Master Thesis Study

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INTRODUCTION

This practice paper presents the results of a national scale Graduate Feedback Survey on engineering graduates from Finnish universities of technology. As a result of extensive and long lasting stakeholder cooperation, the Finnish universities of technology nowadays have a common graduate feedback survey coordinated by Academic Engineers and Architects in Finland TEK (referred to as TEK from now on). The common survey has been carried out since 2011. The results provide valuable and comparable bench marking information and are used as a tool for monitoring the quality of degrees and for developing engineering education. It is worth noticing that all the universities of technology or multidisciplinary universities with engineering departments in Finland participate in the feedback survey, making it a very extensive research. Answering rate to the survey has traditionally been high, and for example of the 1 914 graduates in year 2015, 72 % responded to the survey. From the total amount of respondents 16 % were non-Finnish. 3 % of internationals came from other EU-countries and 13 % of from countries outside the EU. In this paper the focus is on the

employability of international graduates and how their results compare with those of their Finnish peers. The results are based on the feedback from 2015 graduates.

1 CONDUCTING THE GRADUATE FEEDBACK SURVEY

The annual feedback survey is carried out using an electronic SurveyPal-questionnaire. In most of the participating universities, the survey is included as a part of the graduation process. The questionnaire is open from beginning of January to the middle of next January. The results are collected and analyzed by TEK.

The survey asks graduates' feedback on a wide range of topics, such as duration of studies, such as importance and development of skills and competencies, study guidance, theses work, work experience prior to graduation, employment situation at the time of graduation and overall satisfaction and open feedback on the university degree.

2 RESULTS OF THE FEEDBACK SURVEY

According to the results, the overall employment rate at the time of graduation is 60 %. However, as seen in Figure 1, there is a vast difference in the employment of local and international graduates. 65 % of the local Finnish graduates are employed at the time of graduation, but only 30 % of the internationals have a work contract.

The amount of local graduates looking for a job is 24 % but the figure is almost double, 45 %, for the internationals. It is also much more common for the international graduates to continue with post-graduate studies: 14 % of internationals continue as full time post-graduate students but only 5 % of locals do the same.

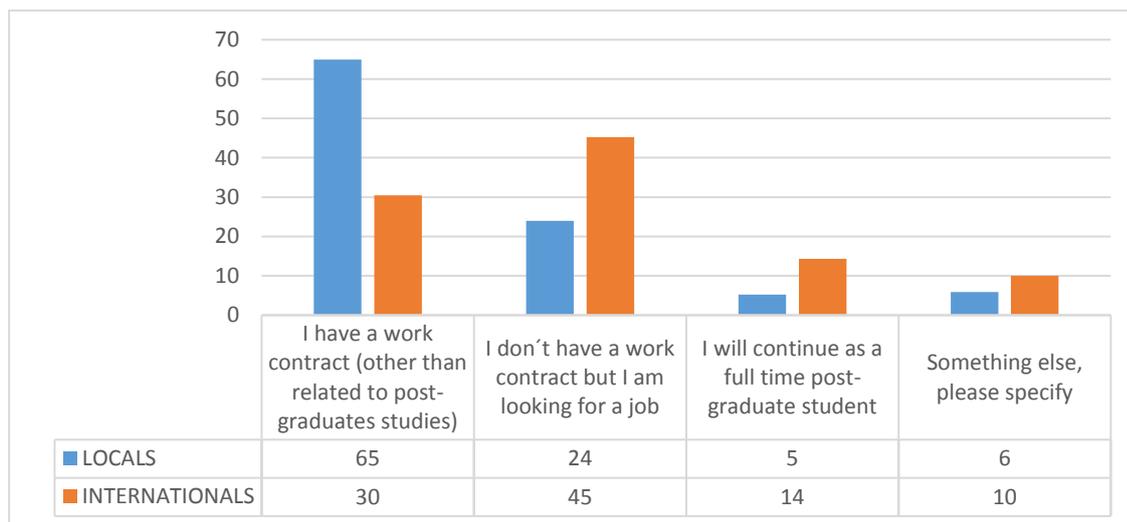


Figure 1. Employment situation at the time of graduation. Percentage of respondents.

As seen in Figures 2 and 3, the type of employment and work contract is different between the two groups. Compared to the internationals, the local graduates are more

likely to have a permanent work contract instead of a temporary one and are much more likely to work full time. Only 5 % of locals have a part time contract, whereas almost every fifth of the internationals have a part time job. The amount of those graduates who are entrepreneurs or self-employed is only a couple percentages for both groups.

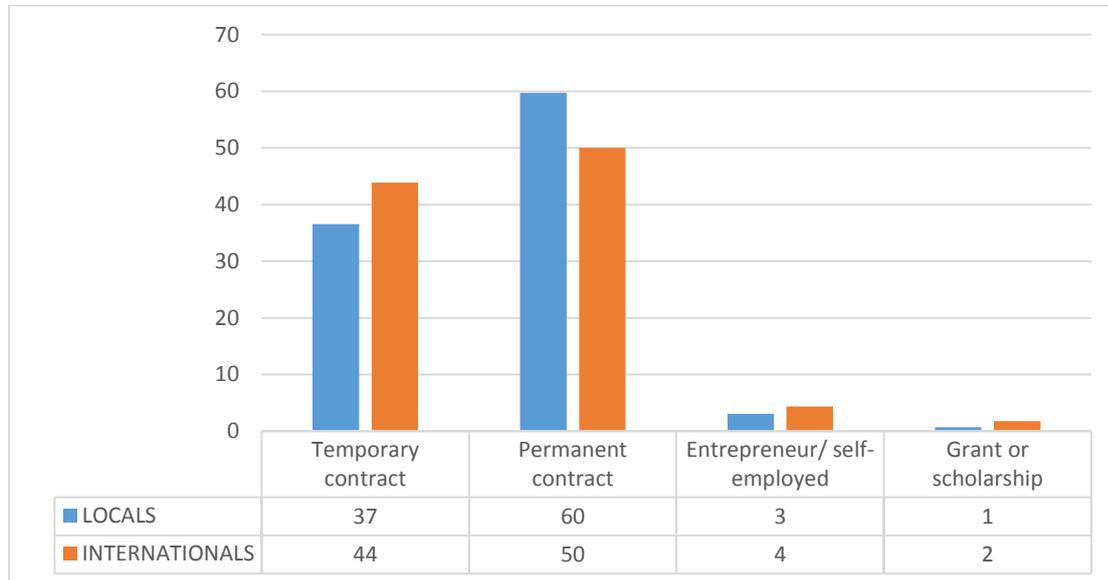


Figure 2. Type of employment, percentage of respondents.

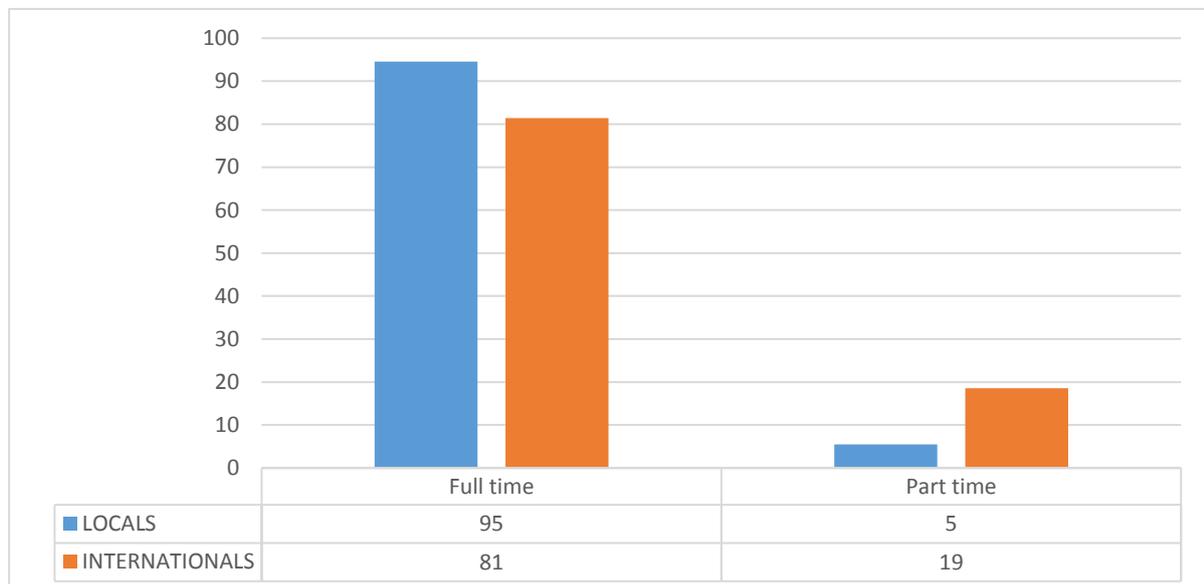


Figure 3. Type of work contract, percentage of respondents.

Figure 4 pictures the previous relationship of the employed graduate with his/her current employer. In Finland it is typical for the engineering students to make their final Master Thesis to a company and also work in companies prior to graduation. This is evidently a very important way of being employed also after graduation. A majority of Finnish graduates, 47 %, were employed into the same company where they had conducted their Master Thesis. 36 % of the internationals were also employed in this

way. 31 % of the Finnish graduates had been employed to a company they had been working for earlier prior to graduation. Looking at the Finnish graduates, almost 80 % had therefore found employment in a company they had a previous relationship with. Only 17 % had been employed by an organization they had not worked for before. For the internationals, the situation is somewhat different; 52 % of them had a previous relationship with the current employer, and 44 % had been employed by a company they did not know before.

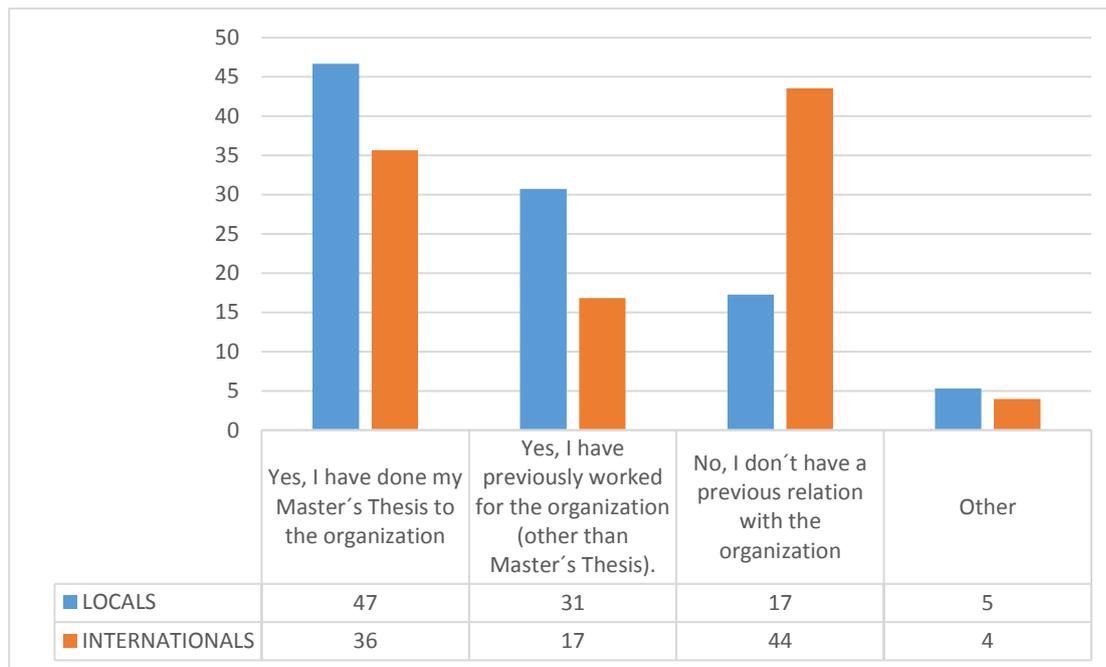


Figure 4. Do you have a previous relation with your current employer? Percentage of respondents.

Looking at the employee position (Figure 5), it can be seen that local and international M.Sc. graduates differ in this respect as well. The most common position for respondents of both groups is to work as specialists. But here is a clear difference in the amount; 47 % of locals work as specialists but only 36 % of internationals. In addition, 34 % of the internationals describe their employee position as “other”, this being something else than working in upper or middle management or as entrepreneurs or self-employed. This result indicates that the qualitative employment of internationals is more untypical compared to their local peers. It is worth noticing that although the amount of entrepreneurs among M.Sc. graduates is very small, the internationals are entrepreneurs or self-employed much more often than the locals; 6 % and 2 % accordingly.

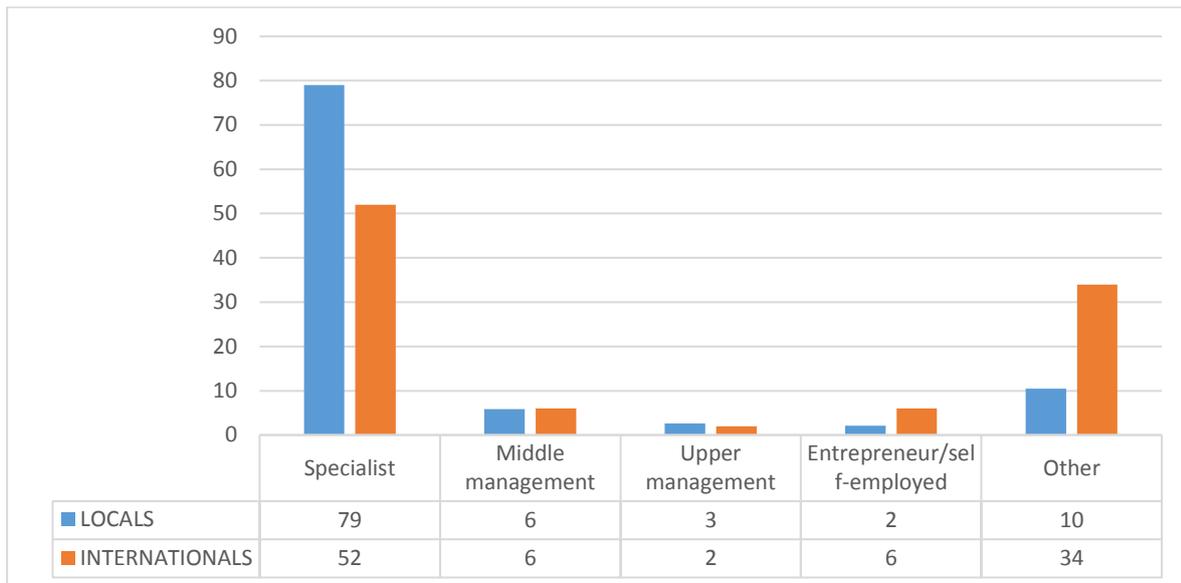


Figure 5. Employee position, percentage of respondents.

The correspondence of the current job with the field or level of studies is pictured in Figures 6 and 7. As can be seen, the local graduates are clearly better qualitatively employed than internationals. However, the difference is smaller when looking at how well the requirements of the current job correspond with the level of studies. As the M.Sc. degree is a broad education and gives competencies to work in a number of different areas or positions, it could be argued that this is an even better measure of the qualitative employment.

The result indicates that although the internationals may be employed to fields or areas outside the specific field they have studied, the requirements of the job meet the level of education.

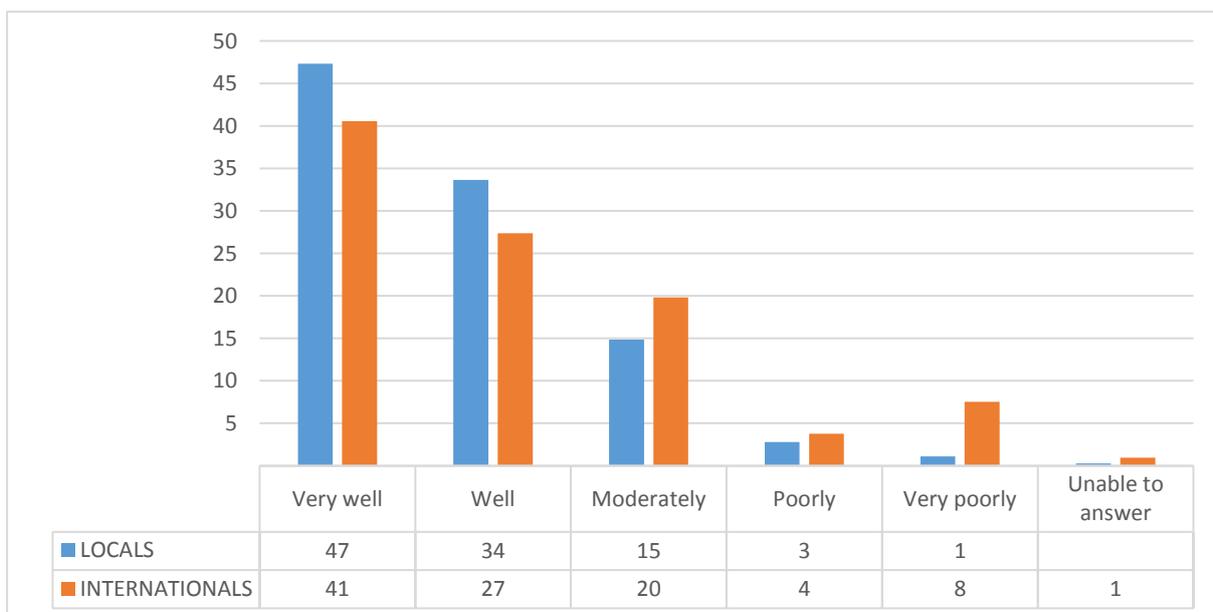


Figure 6. Correspondence of current job with the field of studies, percentage of respondents.

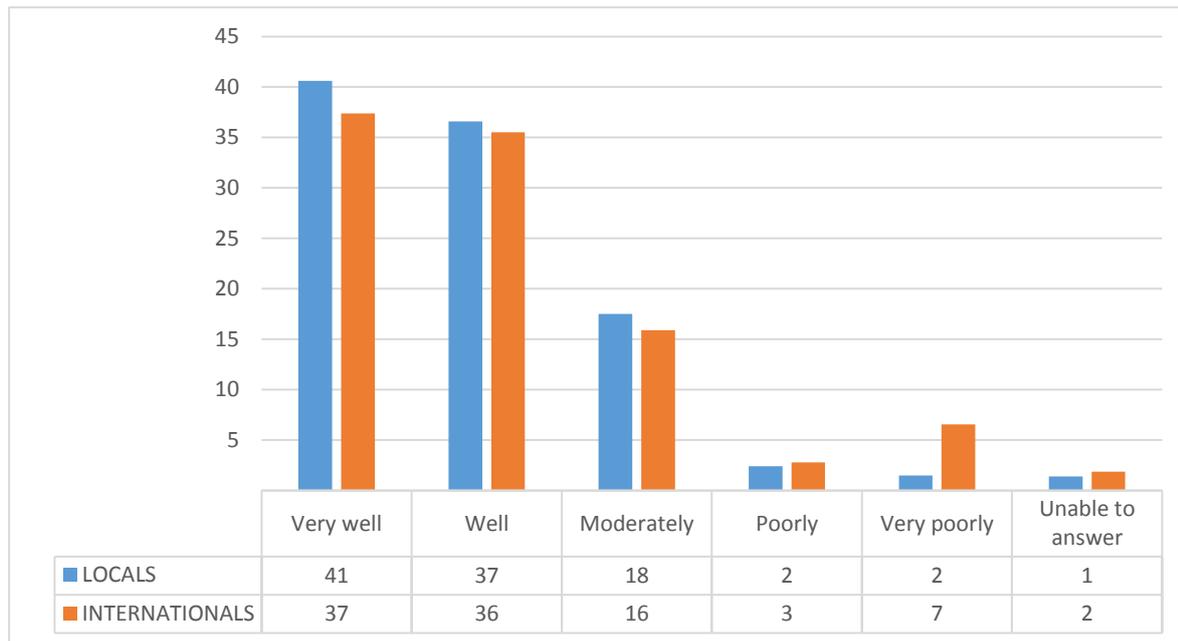


Figure 7. Correspondence of the requirements of current job with the level of studies, percentage of respondents.

3 CONCLUSION AND DISCUSSION

This paper focuses on the employability of international, eg. originally non-local, M.Sc. engineering graduates in Finland. The results of the 2015 graduates reveal a grim current situation; while 65 % of the national graduates are employed at the time of graduation, only 30 % internationals have a job. In addition to quantitative employability, the indicators reveal that the qualitative employment of international graduates is also poorer compared to their local peers. International graduates are more likely to have temporary and part time work contract and the correspondence of their current job to their field or level of studies is less than that of the local graduates. As they typically have less access to working life during their studies, they also face a bigger challenge of being employed in the first place.

The quantitative employment rate is probably the single most important and revealing indicator. The current situation is an unsatisfactory from many points of view. The first reason is to do with economy. The amount of international students in Finland has doubled over the last decade. Of the 20 000 international students here, approximately 10 000 study in universities (all fields included.) Traditionally all students, whether local or international, have been able to study Bachelor, Master and Doctor degrees in Finland for free. Education is seen as an investment in the competencies of the young generations entering working life. The payback is later carried out in form of taxes. However, if the international graduates are only poorly employed here, their

competencies and potential are not fully used in the society. This results in an unsatisfactory education investment for the national economy.

Secondly, if international graduates are not employed, this could result in diminishing diversity of working life. It is likely that working life and the society as a whole will benefit from a vast and varied competence potential. Innovations are rarely created by individuals with similar background, education and competencies. Instead, new innovations are more likely to be created at the interfaces of varied competencies. There are studies indicating that diversity and multiplicity are factors increasing creativeness and innovativeness. A study made for European companies (<http://www.iegd.org/pdf/Task%203%20-%20Innovation.pdf>) reveals that 63 % of the companies having a diversity strategy implicate that it had increased innovativeness and creativity. In addition, 59 % of those companies saw diversity as an enhancing factor for their business. An increasing number of companies operate globally needing internationally minded, skilled experts. For example, a graduate mastering his/her home culture and language, but who is also familiar with the local way of life, can bring considerable added value to a local exporting company.

Thirdly, employment difficulties in host country are unsatisfactory from the individual point of view. Studies by authors' affiliation and CIMO (Centre for International Mobility) indicate that 70 % of international students would like to stay in country after graduation, but only 40 - 55 % of them are employed in Finland after one year from graduation. The rest are forced to seek jobs and start a career elsewhere.

The graduates' feedback data reveals that gaining relevant work experience and networks prior to graduation clearly increases the employability. Of the graduates employed at the time of graduation, almost 80 % had been recruited to the company in which they had made the final Master Thesis or to a company they had otherwise been working for during their studies. Only less than 20 % of the employed graduates had no prior contact to their present employer. The local engineering students gain a rather substantial amount of work experience prior to graduation. It is typical to use the summers to work and many also have part time jobs during semesters. On average the local graduates have 25 months of work experience of which 18 months (72 %) is relevant to their field of studies. However, the international graduates generally have much less, if any, work experience when they graduate with a M.Sc. degree. This puts them in a more challenging situation when seeking for employment after graduation.

The international students would clearly benefit having more work experience or other contacts with working life. However, during their M.Sc. studies lasting typically for two years, the international students have a limited time to gain work experience. Also, bringing together the local companies and international students/graduates can be challenging. This is especially so in the case of small and medium sized companies which tend to be unaware of the international graduates' potential. On the other hand, the international graduates might find it difficult to find job openings at small and medium sized companies. Integrating university-business cooperation in the

curriculum such as work assignments, project work or traineeships with companies could provide international students valuable experience and contacts improving their employability later. Also, profound career and study guidance as well as encouragement and possibilities for language studies and networking with locals are recommended.

Based on the reasons and results already stated above, TEK has an interest to provide information and tools to increase the employability of international graduates in Finland. Concrete actions are also taken; TEK, The Finnish Business School Graduates and The Federation of Finnish Technology Industry are currently conducting a joint Master Thesis Study focusing on what are the key elements affecting the employability of international graduates and what could be done by universities, employers, affiliations like TEK and the international students themselves in order to increase their employability. Those results will also be available for presentation at the SEFI2016 conference. The Master Thesis also provides a literature review on studies and articles focusing on the matter. The question of employability of international students and graduates is global, and the input of this paper is therefore meant to benefit also other countries or communities facing challenges of integration and proper utilization of the diverse potential of international students and graduates.