

What Are Finnish Higher Education Graduates Able to Do? Competences in Literacy, Numeracy and Problem Solving in Technology-Rich Environments (0104)

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Background

Changes in all areas of life have stressed a need for highly competent work force for the need of working life as well as educated and cultivated citizens to tackle with challenges of globalised world. Typically, higher education is expected to generate these competences involving understanding, interpretation and analysis of complex information. These higher order skills are often associated with economic growth and development in the globalized economy (Sianesi & Van Reenen, 2003). However, there is little information of what actually higher education graduates know and can do after graduation. The aim of our study is to analyse competences of higher education graduates in literacy, numeracy and problem solving.

There are numerous classifications of competences ranging from more generic ones to specific skills of higher education graduates (e.g. Allan 1996; Allen et al. 2005) but nonetheless they all agree that high level cognitive skills (such as literacy, numeracy and problem solving in this study) are crucial for the success of individuals and societies. Indeed, higher education is increasingly seen as the provider of intellectual capital for the knowledge economy, whereby the main emphasis is placed on such competencies as problem solving, creativity, and analytical abilities (Allen et al. 2005).

As we utilise data from the OECD's Programme for the International Assessment of Adult Competencies (PIAAC) we comprehend *literacy* as the ability to understand and use information from written texts in a variety of contexts to achieve goals and develop knowledge and potential. *Numeracy*, in turn, is the ability to use, apply, interpret, and communicate mathematical information and ideas which is an essential skill in an age when individuals encounter an increasing amount and wide range of quantitative and mathematical information in their daily lives. *Problem solving in technology-rich environments* refers to the ability to use technology to solve problems and accomplish complex tasks. It is not a measurement of "computer literacy", but rather of the cognitive skills required in the information age. (OECD 2013)

Aims and methods of the study

The purpose of our article is to analyse the competences of higher education graduates in literacy, numeracy and problem solving in technology-rich environments. We also analyse whether gender, age, time from graduation, work experience and field of study and make a difference in the level of competences.

We base our article on data collected in the PIAAC 2012 between August 2011 and March 2012 in Finland. Altogether 5 464 adults (age 16 – 65 years) participated the research and the final response rate was 66 %. The statistically representative data collection was carried out by the interviewers from Statistics Finland. The research took place in two phases. First part was a computer assisted interview dealing with respondents' background. After the interview the participants did the assignments independently mainly by using computers.

This article concentrates on the respondents with higher education degree (ISCED 5A or ISCED 6). A little bit over one out of five (22 %, n = 1 209) respondents had completed these degrees. The data was analysed by using various quantitative methods.

Results/Conclusions

Based on our tentative analysis, respondents with higher education degree outperformed those with lower degrees. However, when examining only the respondents with higher education degree, we found statistically significant differences.

For example, in numeracy and problem solving the results were a little bit higher for male. Those respondents from the humanities performed well in literacy and problem solving, whereas those graduated from the STEM field received highest scores in numeracy. In addition, the respondents from the social sciences performed well in literacy.

General tendency was that the respondents aged 25 – 34 had the best results in all three domains. The oldest respondents (over 50 years) performed poorly in problem solving and the results for literacy and numeracy were about the average or a little bit lower.

The newly graduated (less than five years from graduation) respondents performed best in problem solving. In literacy those who had worked 3 – 10 years after graduation reached the highest levels of competence.

Based on the preliminary results we conclude that the higher education in Finland at the moment produces sufficient competences whereas those “older” generations’ competencies seem to require up dating. The results indicate that continuing education is essential to higher education graduates, too.

References

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