Executive Summary

The technological revolution that began in the last decades of the 20th century has affected nearly every aspect of life in the 21st: from how we "talk" with our friends and loved ones, to how we shop, and how and where we work. Quicker and more efficient transportation and communication services have made it easier for people, goods, services and capital to move around the world, leading to the globalisation of economies. These social and economic transformations have, in turn, changed the demand for skills as well. With manufacturing and certain low-skill tasks increasingly becoming automated, the need for routine cognitive and craft skills is declining, while the demand for information-processing and other high-level cognitive and interpersonal skills is growing. In addition to mastering occupation-specific skills, workers in the 21st century must also have a stock of information-processing skills and various "generic" skills, including interpersonal communication, self-management, and the ability to learn, to help them weather the uncertainties of a rapidly changing labour market.

The Survey of Adult Skills (PIAAC) was designed to provide insights into the availability of some of these key skills in society and how they are used at work and at home. It directly measures proficiency in several information-processing skills – namely literacy, numeracy and problem solving in technology-rich environments. The main findings of the survey and of the analysis of results are presented below.

WHAT ADULTS CAN DO IN LITERACY, NUMERACY AND PROBLEM SOLVING IN TECHNOLOGY-RICH ENVIRONMENTS

- In most countries, there are significant proportions of adults who score at lower levels of proficiency on the literacy and numeracy scales. Across the countries involved in the study, between 4.9% and 27.7% of adults are proficient at only the lowest levels in literacy and 8.1% to 31.7% are proficient at only the lowest levels in numeracy.
- In many countries, there are large proportions of the population that have no experience with, or lack the basic skills needed to use ICTs for many everyday tasks. At a minimum, this ranges from less than 7% of 16-65 year-olds in the Netherlands, Norway and Sweden to around 23% or higher in Italy, Korea, Poland, the Slovak Republic and Spain. Even among adults with computer skills, most scored at the lowest level of the problem solving in technology-rich environments scale.
- Only between 2.9% and 8.8% of adults demonstrate the highest level of proficiency on the problem solving in technology-rich environments scale.

HOW CERTAIN SOCIO-DEMOGRAPHIC CHARACTERISTICS ARE LINKED TO SKILLS PROFICIENCY

- Adults with tertiary-level qualifications have, on average, a 36 score-point advantage in literacy – the equivalent of five years of formal schooling – over adults who have completed lower-than-upper secondary education, after other characteristics have been taken into account.
- The combination of poor initial education and lack of opportunities to further improve proficiency has the potential to evolve into a vicious cycle in which poor proficiency leads to fewer opportunities to further develop proficiency and vice versa.
- Immigrants with a foreign-language background have significantly lower proficiency in literacy, numeracy and problem solving in technology-rich environments than native-born adults whose first or second language learned as child was the same as the language of assessment, even when other factors are taken into account.
- While older adults generally have lower proficiency than their younger counterparts, the extent of the gap between generations varies considerably among countries, suggesting that policy and other circumstances may weaken the impact of the factors responsible for the otherwise negative relationship between key information-processing skills and age.

- Men have higher scores in numeracy and problem solving in technology-rich environments than women, but the gap is not large and is further reduced when other characteristics are taken into account. Among younger adults, the gender gap difference in proficiency is negligible.

HOW SKILLS ARE USED IN THE WORKPLACE

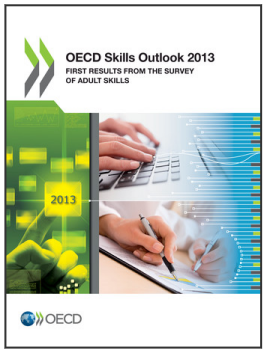
- The use of skills in the workplace influences a number of labour market phenomena, including productivity and the gender gap in wages.
- It is not uncommon that more proficient workers use their skills at work less intensively than less proficient workers do, indicating that mismatches between skills proficiency and the use of skills in the workplace are pervasive.
- An individual's occupation is more strongly associated with how that person uses skills at work than either his or her educational attainment or the type of employment contract he or she has.
- About 21% of workers are over-qualified and 13% are under-qualified for their jobs, which has a significant impact on wages and productivity.

HOW SKILLS ARE DEVELOPED AND MAINTAINED – AND LOST

- Proficiency in literacy, numeracy and problem solving in technology-rich environments is closely related to age, reaching a peak at around 30 years of age and declining steadily, with the oldest age groups displaying lower levels of proficiency than the youngest. The decline in proficiency over time is related both to differences in the amount and quality of the opportunities that individuals have had to develop and maintain proficiency (particularly, but not exclusively, through formal education and training) over their lifetimes, and to the effects of biological ageing.
- At the country level, there is a clear relationship between the extent of participation in organised adult learning activities and average proficiency in key information-processing skills.
- Adults who engage more often in literacy- and numeracy-related activities and use ICTs more – both at and outside of work – have greater proficiency in literacy, numeracy and problem-solving skills, even after accounting for educational attainment. Engagement in relevant activities outside of work has an even stronger relationship with proficiency in the skills assessed than engagement in similar activities at work.

THE RELATIONSHIP BETWEEN SKILLS PROFICIENCY AND ECONOMIC AND SOCIAL WELL-BEING

- Proficiency in literacy, numeracy and problem solving in technology-rich environments is positively and independently associated with the probability of participating in the labour market and being employed, and with higher wages.
- In all countries, individuals who score at lower levels of proficiency in literacy are more likely than those with higher proficiency to report poor health, believe that they have little impact on the political process, and not participate in associative or volunteer activities. In most countries, individuals with lower proficiency are also more likely to have lower levels of trust in others.



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