

Competencies in technology-rich environments

Work-place skills

Matching PIAAC's Job Requirements Approach with an employers survey

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Numeracy

Literacy

Problem solving skills

Outline

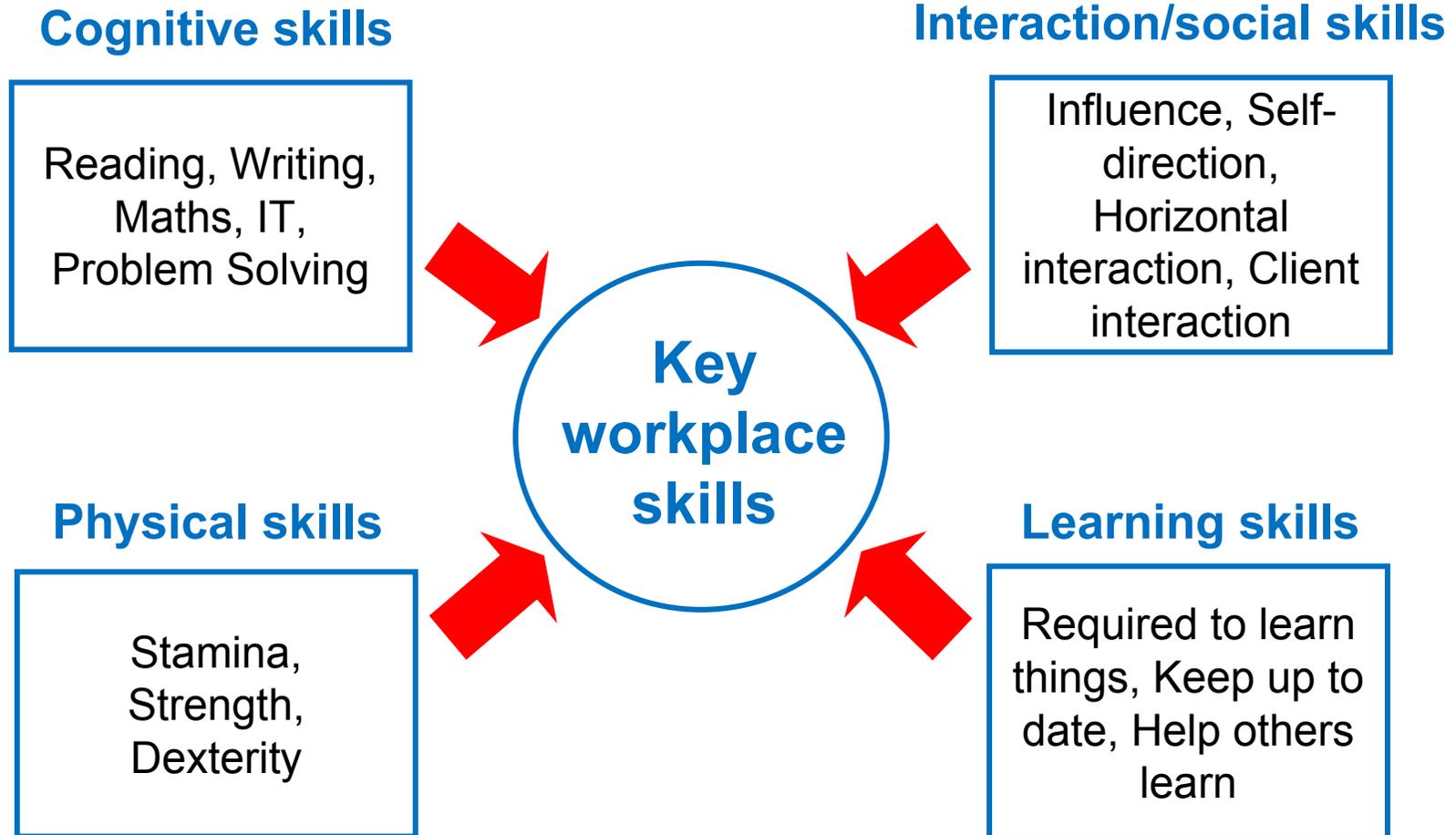
- ❑ **The JRA pilot study**
- ❑ **Some illustrative results from the study**
- ❑ **Implications for an employer survey of skills**

The JRA pilot study

What is the JRA pilot study and why was it needed?

- ✓ A new international survey of adult skills – PIAAC – will be carried out in 2011
- ✓ In addition to assessing literacy and numeracy, a range of broad and generic work skills will be measured by PIAAC using the Job Requirements Approach (JRA)
- ✓ Several national surveys have used the JRA method (e.g. O*NET in the US, UK Skills Survey, Italian Organisation, Learning and Competences Survey), but not yet used extensively in an international survey
- ✓ Therefore, pilot study was carried out to demonstrate the JRA's feasibility and validity

Skills measured in the JRA pilot study



Purpose and conduct of the JRA pilot study



How was the pilot developed and carried out?

- ✓ JRA expert group advised on the content and methodology of the pilot questionnaire
 - Careful construction of scales to avoid cultural biases – objective rather than subjective scales used, e.g. frequency and time-use scales
 - Extensive cognitive testing of items took place in several countries to refine survey items
- ✓ In each pilot country, representative sample of 500 adults and additional sample of 100 primary-school teachers
- ✓ During 2008, the pilot survey took place in Australia, France, Greece and Korea and the results processed

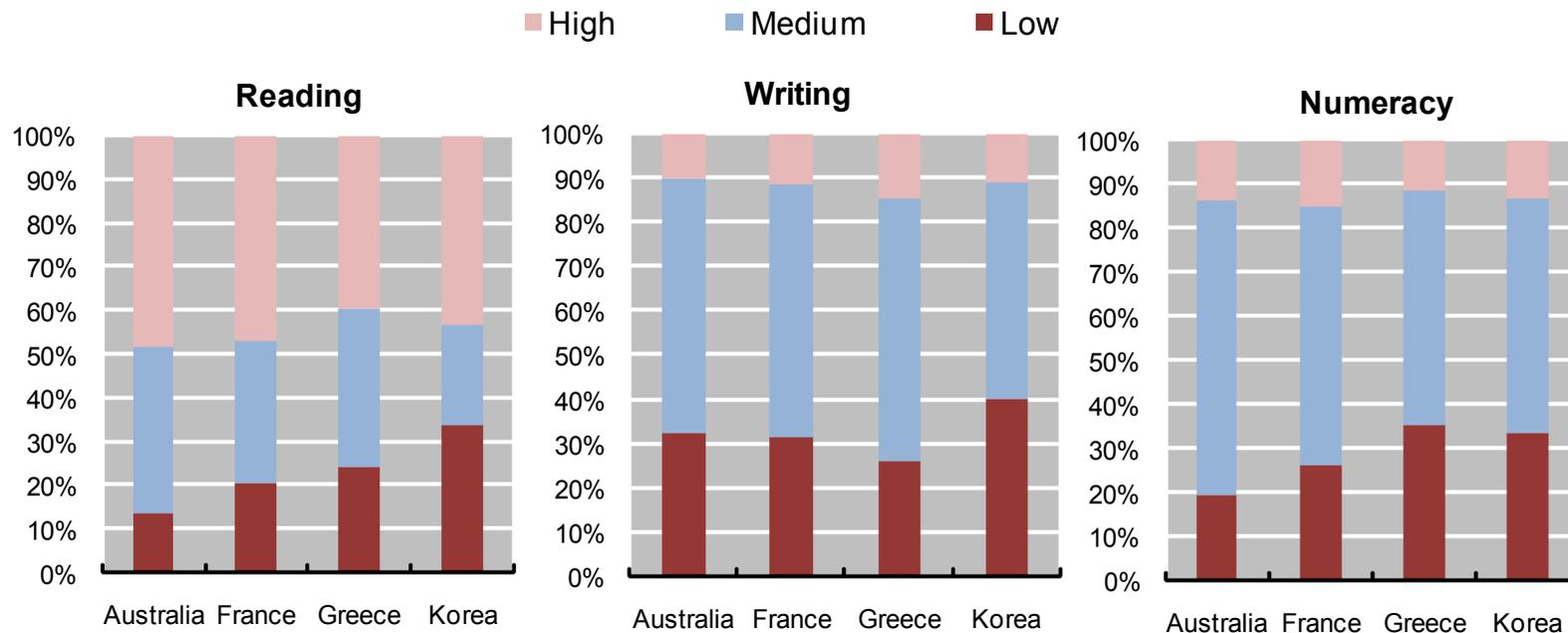
Some illustrative results from the pilot

Provides rich picture of skill use that goes well beyond the usual indicators of skills such as educational attainment and occupation

- ✓ Substantial proportion of workers only require a low level of literacy and numeracy skills in their jobs
- ✓ Smaller proportion of workers require a high level of writing and numeracy skills

Distribution of workers by level of cognitive-skill use

% of workers at each level of skill use



Source: OECD JRA Pilot Study (general sample).

Some illustrative results from the pilot

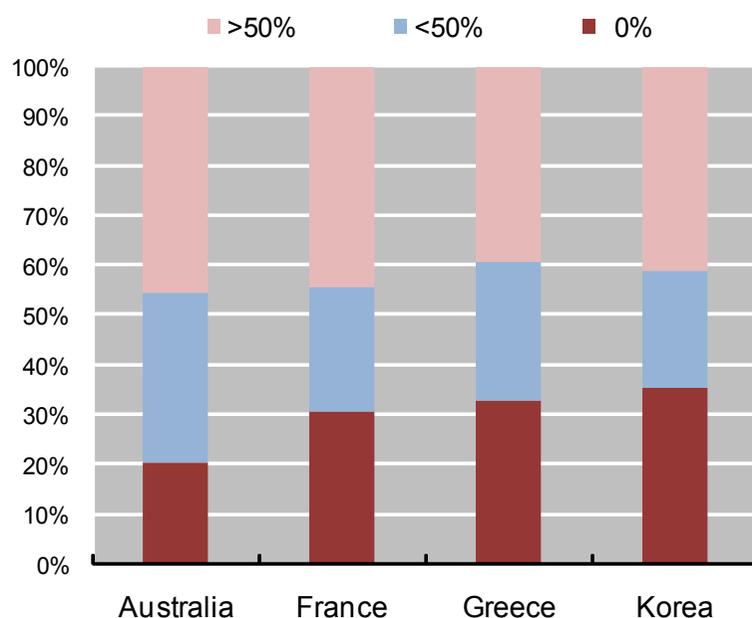
IT revolution not ubiquitous and there is a digital divide among workers

- ✓ A significant proportion of workers do not use computers at all
- ✓ Only a minority of workers who use computers do so for performing complex or advanced tasks

Computer use at work

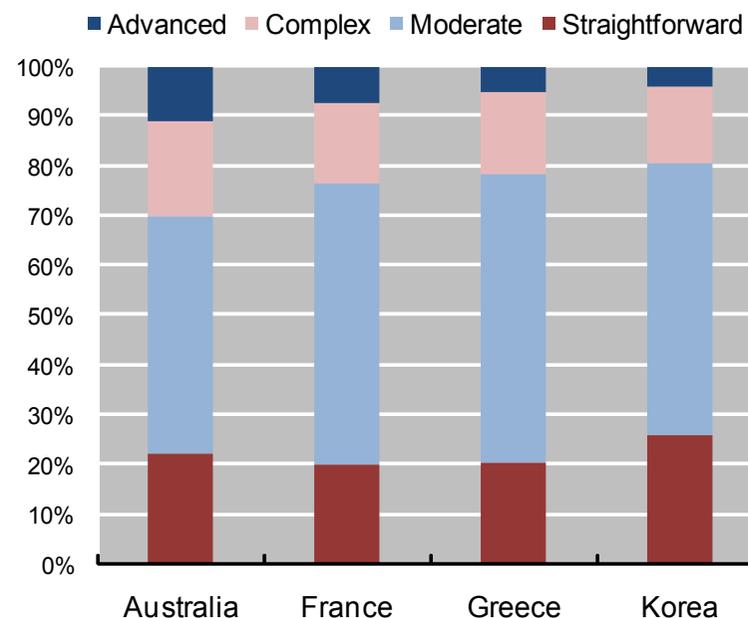
A. Time spent working with a computer

% of workers by time spent



B. Level of computer usage

% of workers using a computer by level



Source: OECD JRA Pilot Study (general sample).

Some illustrative results from the pilot

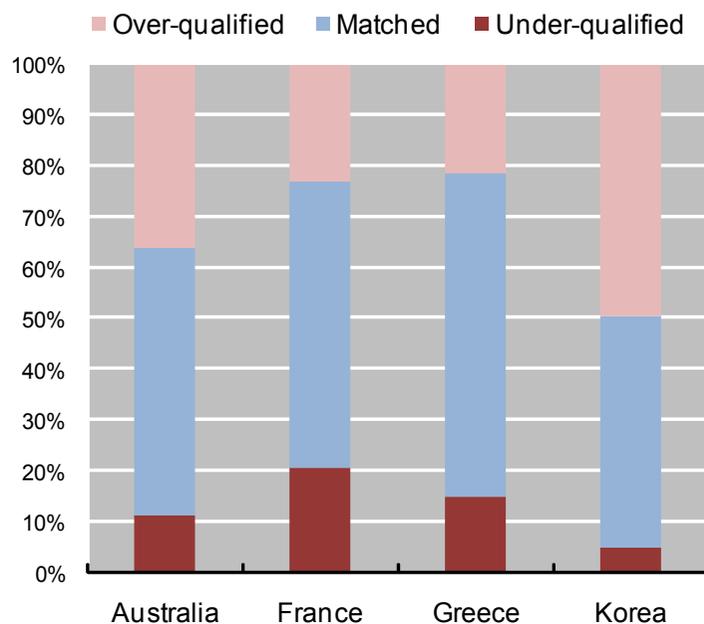
Provides measures of both education and skills mismatch

- ✓ Proportion of workers over-qualified highest in Korea but relatively fewer over-skilled workers
- ✓ In Australia and Korea, over-qualifications (under-qualifications) are associated with a large earnings penalty (premium)

Education and skill match

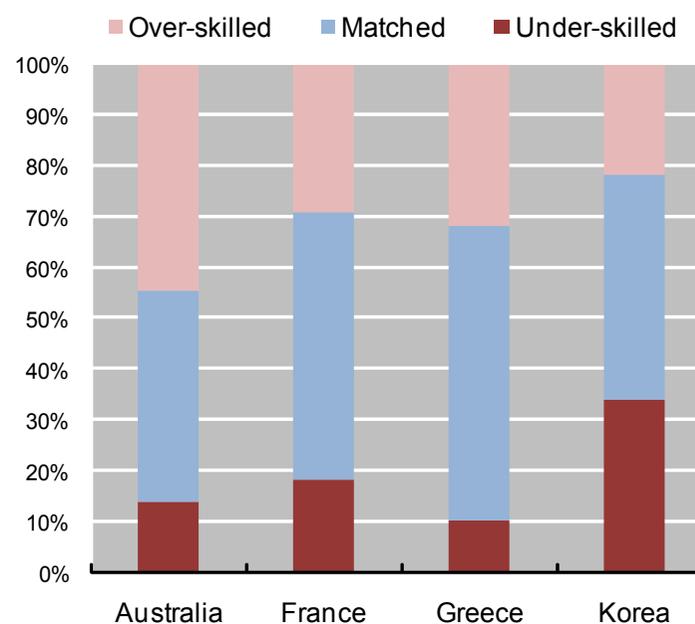
A. Education match

% of workers by match category



B. Skill match

% of workers by match category



Source: OECD JRA Pilot Study (general sample).

Limitations of the JRA for measuring skill needs

- ✓ Range of other skills also covered in the pilot, e.g. caring, communication, self-direction, physical stamina and dexterity
- ✓ Also captures information about **sector and occupation**
 - Subject to sample-size limitations, could build up skills matrix by industry and occupation
- ✗ But only limited information about firm characteristics, technology use and work organisation
 - ✓ Nevertheless, the available evidence points to significant links with skills
 - For example, quality-improvement circles appear to require higher reading and numeracy skills and greater communication skills.
 - Similarly, client monitoring of workers implies greater use of customer communication skills, and team-working is associated with greater internal communication skills
 - ✗ Does not measure unmet skill needs of firms

Need for a matched employer-employee survey

- ✓ Only employer surveys can provide good, reliable information about firm size, performance, the type of market firms operate in, adoption of new technology and working methods, etc.
- ✓ But employer survey weaker on measuring the types of (generic) skills required in jobs, apart from occupational qualifications
- ✓ Ideally, a matched employer-employee survey is needed if we want to measure skill needs more broadly and identify the structural factors driving these needs
- ✓ Irish National Employment Survey (NES) provides one example
 - See also the well-known Workplace Employment Relations Survey (WERS)
- ✓ Regularly collects information on earnings but in 2006 also asked about vacancies and skill gaps
 - Similar questions were also asked of employers in the UK National Employers Skills Survey for 2007 but with no matched employee survey

The Irish NES: skill questions for employers



C.3 (A) Do you assess what gaps employees have in their skills? Yes/No

(B) Are there acute shortages of a particular skill in the existing workforce? (please mark all that apply)

- (a) Communication skills
- (b) Customer service skills
- (c) IT skills - general
- (d) IT skills - professional
- (e) Language skills - English
- (f) Language skills - Foreign
- (g) Literacy skills
- (h) Management & supervisory skills
- (i) Numeracy skills
- (j) Technical & practical skills
- (k) Other

(C) Why is there a shortage of these skills? (please mark all that apply)

- (a) Recruitment problems
- (b) Poor quality candidates
- (c) Lack of experience or staff recently recruited
- (d) Constant change & development in a particular skills area
- (e) High staff turnover
- (f) Staff lack motivation to acquire skills
- (g) Failure to train & develop staff
- (h) Other reason

The Irish NES: skill questions for employers



C.4 For each occupation in your current workforce, indicate which skills areas need upgrading: (please mark all that apply)

Occupations

Managers, Senior Officials
Professionals
Technicians & Associate Professionals
Clerical Workers
Sales & Service Workers
Skilled Agricultural & Fishery Workers
Craft & Related Trade Workers
Plant & Machine Operators & Assemblers
Other Manual Occupations

Skill areas

Technical & practical skills
IT skills
Management skills
Language skills
Numeracy & literacy skills
Communication & customer service skills

C.5 What is your company's preferred method of addressing these skill gaps? (please mark all that apply)

Hire experienced staff
Through company or company-sponsored training courses
Through 'On- the- job ' training
Training by other self directed learning

The Irish NES: skill questions for employees



Q.13 Workplace Skills in 2006

(A) How did you acquire the skills for your current job? (Mark all that apply)

- (a) Hired as an experienced worker
- (b) Through company or company-sponsored training courses
- (c) Through 'On-the-job' training (e.g. co-workers, supervisors, trainers, etc.)
- (d) Self-directed learning (e.g. open or distance learning, night classes, etc.)
- (e) Other

(B) For your current job, do you require training in any of the following

areas: (Mark all that apply)

- (a) Communication skill
- (b) Customer service skills
- (c) IT skills - general
- (d) IT skills - professional
- (e) Language skills - English
- (f) Language skills - Foreign
- (g) Literacy skills
- (h) Management skills
- (i) Numeracy skills
- (j) Technical & practical skills
- (k) Other

(C) Since you began working in your current job, has the overall skills requirements of the position:

- (a) Increased? (b) Remained about the same? (c) Decreased?

The Irish NES: limitations

- ✓ Also provides extensive information on training
- ✗ But the survey has a number of limitations
 - Employers receive an extensive set of questions about skill gaps but few question about the “stock” of skills of the existing workforce
 - Only relatively few skill-related questions are asked of employees
- ✓ Ideally, should be supplemented with:
 - A more extensive set of JRA-type questions for employees to build-up richer picture of skills used at work
 - A more extensive set of “contextual” questions for employers (e.g. market environment, adoption of new technology and work-organisation methods, performance, etc.)

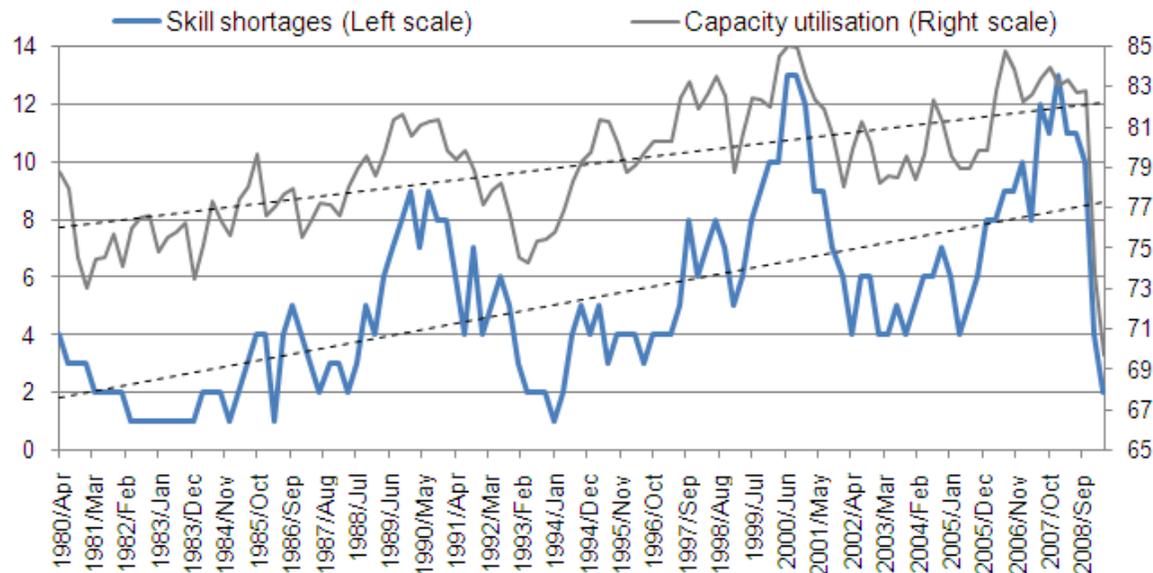
Why do we want to know about skill needs?



Ultimately, how we measure skill needs will depend on the policy and research questions we want to answer

- ✓ Are we interested in the short-term or the long-term perspective?
 - On the one hand, we may want to focus on how education and training systems are coping with structural changes in skill needs
 - On the other hand, short-run changes in skill gaps may be of concern because of possible inflationary pressures – this latter concern is often highly cyclical

Cyclical pattern of skill shortages in Belgium's manufacturing sector (%)*



* The data refer to: i) the percentage of firms reporting that a shortage of skilled labour was an impediment to production; and ii) the degree of capacity utilisation reported by firms.

Source: Results of National Bank of Belgium's quarterly business survey (<http://www.nbb.be/belgostat>).

Conclusions

- ❑ JRA probably provides a comprehensive picture of (generic) skill needs
- ❑ But is weaker on firm characteristics and on skill gaps
- ❑ For a more structural analysis of skill needs, a matched employer-employees survey should be carried out
- ❑ Possibly complemented by a more frequent employer/PES survey of vacancies for examining short-term “matching” issues
- ❑ The experience of the JRA pilot study also suggests that extensive pre-testing, piloting and strict translation procedures should be carried out before implementing any new European-wide survey