

Vocational Education, Skills Use and Perceived Skills (Mis)match in the Czech Republic: Evidence from PIAAC

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Agenda

- Why focus on graduates of apprenticeship programmes not leading to the matura examination?
- The Czech education system: a brief historical overview
(Education behind the Iron Curtain and the post-1989 transformation)
- Vocational education and skills through the lens of PIAAC data

Czech education system, strategical documents and PISA data

Early tracking and “dead-end” pathways in the Czech education system

1948: a considerably less ethnically and linguistically diverse society as a legacy of the Holocaust and post-war population transfers

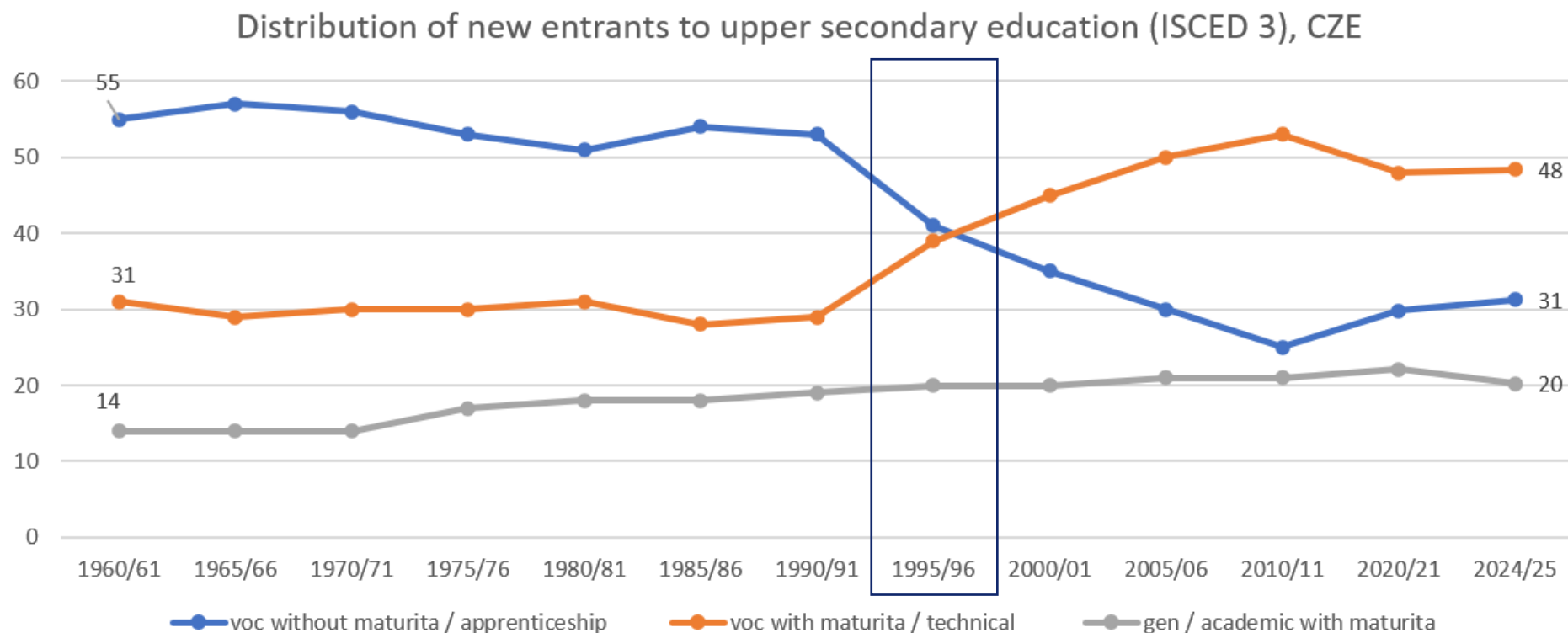
Before 1989: a centralised, planned education system

- The centralized education system prioritised apprenticeship training and technical fields in line with the needs of the planned economy.

After 1989 (Velvet Revolution): decentralisation and diversification

- Governance of the education system was gradually decentralised and school autonomy was strengthened.
- Elements of school choice and competition were introduced, the range of programmes expanded (2-level curricula), and private schools emerged at different levels of education.
- With reference to the interwar Czechoslovak tradition, six- and eight-year grammar schools (the general academic track) were reintroduced from the 1990/91 school year, strengthening differentiation and reintroducing early selection.

Upper secondary education (CZE, 1960-2024, CZSO)



How the Czech School Inspectorate frames the PISA survey

PISA 2022, *From the National Report (Czech School Inspectorate, 2023)*:

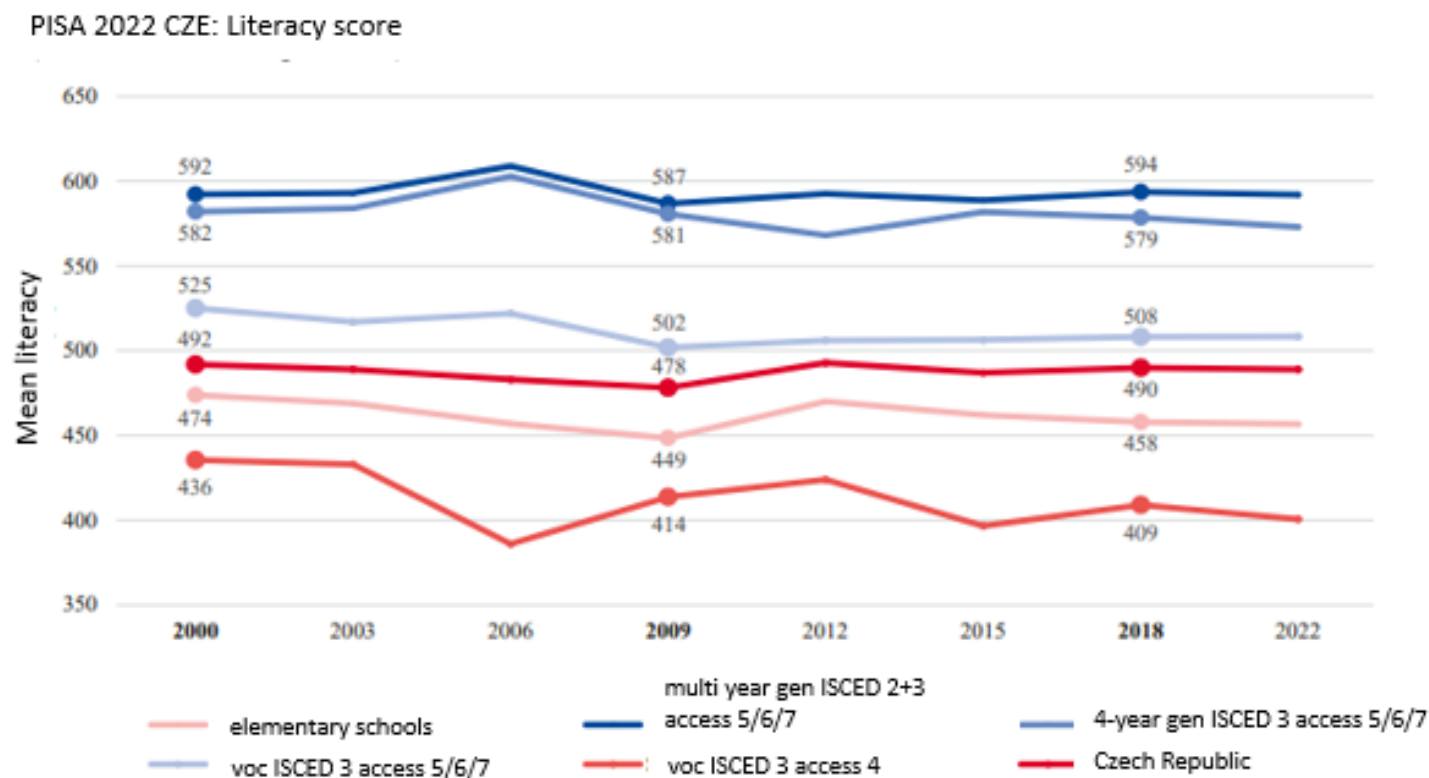
„The Programme for International Student Assessment (PISA) is one of the major international comparative studies **used to monitor educational outcomes**.

Since its establishment in 1997, it has assessed the reading, mathematics, and scientific literacy of 15-year-old students in regular three-year cycles. **These students are generally approaching the end of compulsory education and preparing for further study or working life.**

PISA aims to identify the knowledge and skills students need to participate successfully in twenty-first-century society. It also provides education policymakers in participating countries with reliable, valid information on the performance and characteristics of their education systems, as well as changes in these indicators over time.“

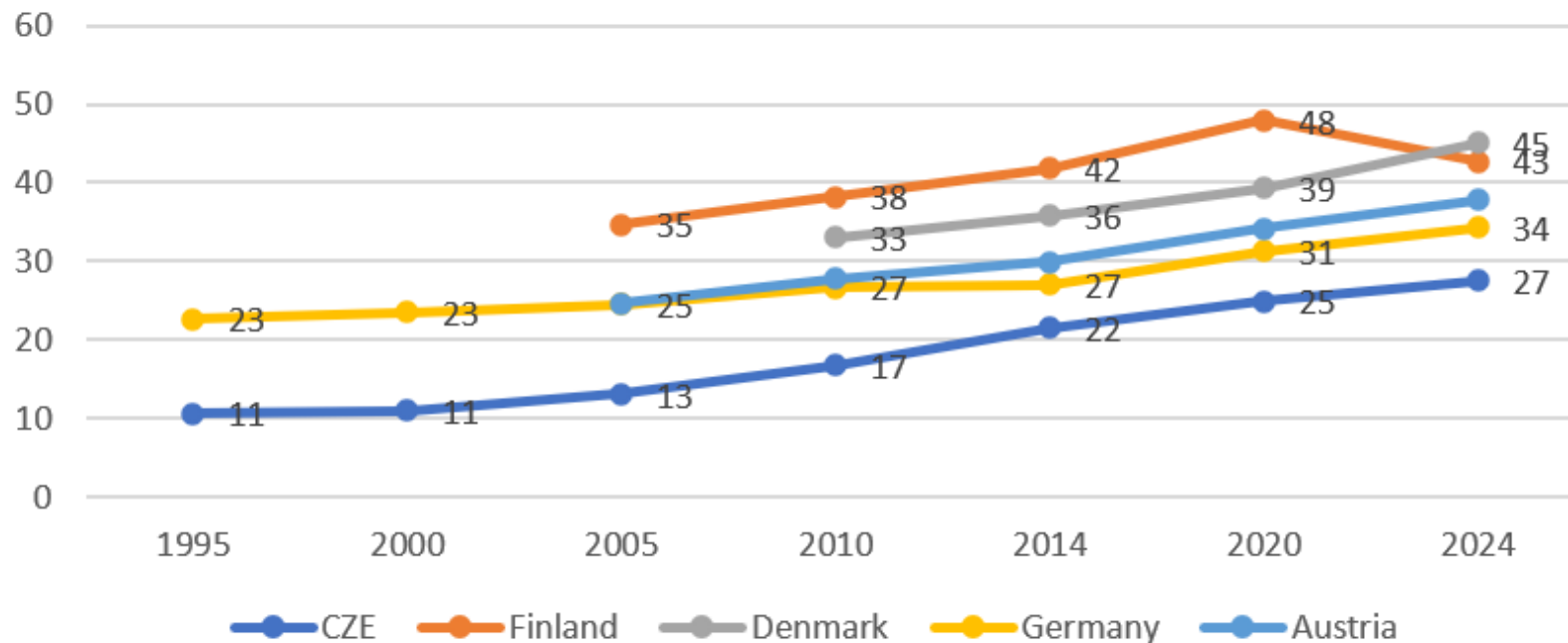
PISA 2022, CZE – Literacy by programme type

Due to early tracking and the high proportion of students with deferred school entry, PISA does not provide straightforward feedback on the outcomes of compulsory schooling.



Tertiary education (country comparison, 1995-2024, LFS)

Share of adults aged 25–64 with tertiary education



The worst of both worlds after the transformation?

High levels of school autonomy, low accountability and weak system-level coordination

- OECD: Education Policy Outlook CZE 2020: „*The Czech education system is **highly decentralised**; (...) **Central government steers the system through key documents**, such as the Framework Educational Programme and the Strategy for Education (...)*“
- Weak school / institutional accountability is accompanied by „responsibilisation of families“: navigating the unified entrance examination („JPZ“), ranking programmes strategically, and estimating admission chances.
- Educational pathways and outcomes are strongly **dependent on socioeconomic status**.
- Early differentiation → unequal literacy / numeracy profiles among young adults → LLL education gap → persistence of these differences in adulthood?

Revisions and education reforms *(Strategy for the Education Policy of the Czech Republic up to 2030+)*

- New restrictions on school-entry deferrals are being phased in **beginning with enrolment for** the 2026/2027 school year; alongside guaranteed teaching-assistant support for first-grade classes with at least 15 pupils.
- Since 2024, applications to the unified entrance examination („JPZ“) can be submitted electronically, and a centralised matching algorithm assigns applicants on the basis of their results and up to three ranked programme choices.
- A further proposal is to hold the unified entrance examination before applications are submitted, enabling students and their families to make better-informed choices.
- **Curriculum revision (ISCED 02 to 3) and reform / innovation of the upper-secondary programme structure** are being prepared (*Ministry of Education and National Pedagogical Institute*).

PIAAC data Cycle 2 (2022–2023)

PUF for the international data

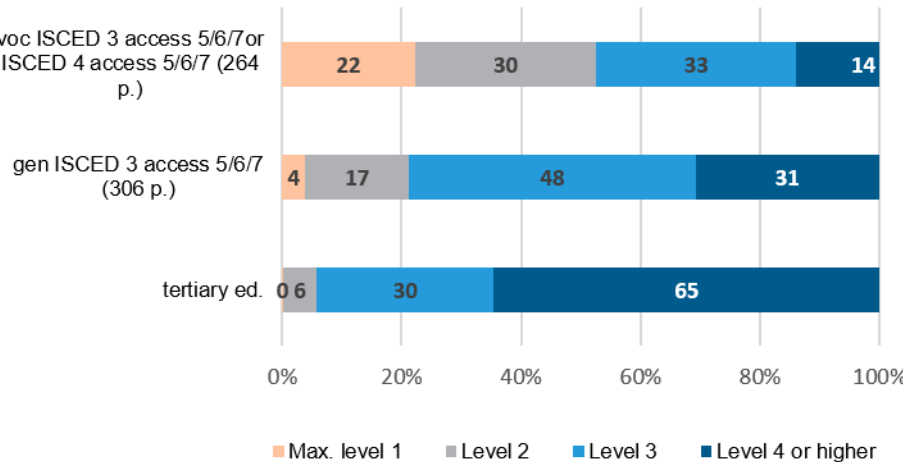
Scientific use file for the Czech data

Literacy, 16-24 years old

16 to 24 years old, ISCED 3 (PIAAC data distribution)

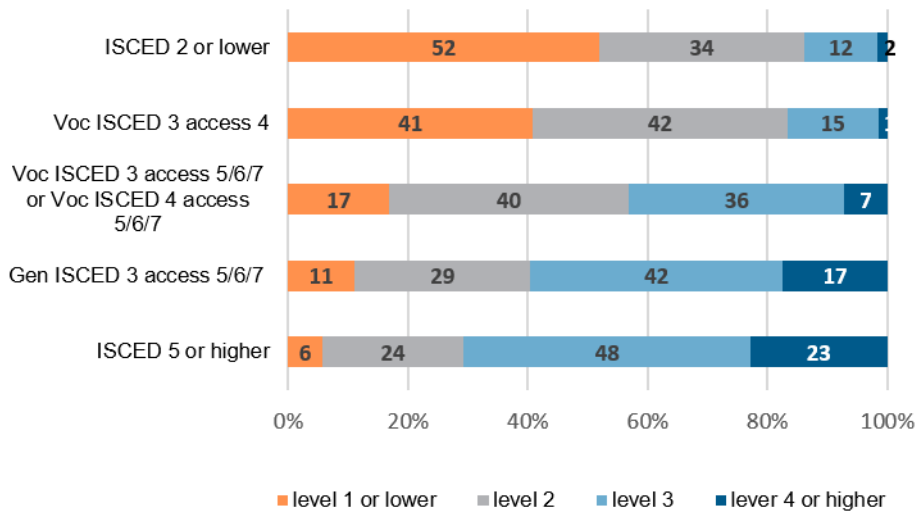
Current education programme	CZE	Finland	CZE, average LIT	Finland, average LIT
Voc ISCED 3 access 4	16%	0%	243	NA
Voc ISCED 3 access 5/6/7 or Voc ISCED 4 access 5/6/7	55%	33%	275	264
Gen ISCED 3 access 5/6/7	28%	67%	297	306
Total	100%	100%		

Literacy by current education programme, 16–24, **Finland**

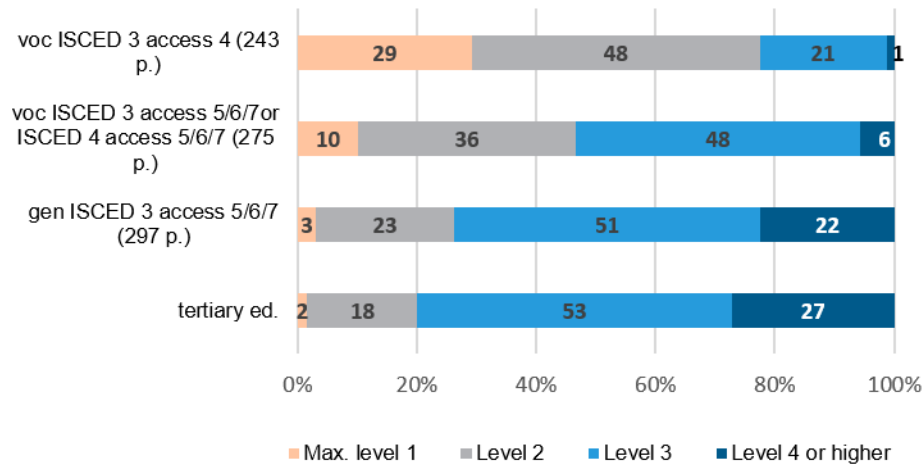


vs 25–65 years old

Literacy by highest education, 25-65, **CZE**



Literacy by current education programme, 16–24, **CZE**



Both maturity and tertiary education are associated with employment in higher-skilled occupations

- Occupational patterns differ substantially by gender

	Occupational classification of respondent's current job by highest education – males (ISCO08, 4 skill based categories)				
	Voc ISCED 3 access 4	Voc ISCED 3 access 5/6/7 or Voc ISCED 4 access 5/6/7	Gen ISCED 3 access 5/6/7	ISCED 5 or higher	Total
Skilled occupations (1-3)	12%	37%	58%	81%	39%
Semi-skilled white-collar occupations (4-5)	20%	27%	21%	14%	20%
Semi-skilled blue-collar occupations (6-8)	60%	32%	14%	4%	35%
Elementary occupations (9)	9%	4%	7%	1%	6%
Total	100%	100%	100%	100%	100%

N=1385 (employed males, 25–65, not in formal education)

	Occupational classification of respondent's current job by highest education – females (ISCO08, 4 skill based categories)				
	Voc ISCED 3 access 4	Voc ISCED 3 access 5/6/7 or Voc ISCED 4 access 5/6/7	Gen ISCED 3 access 5/6/7	ISCED 5 or higher	Total
Skilled occupations	5%	31%	23%	76%	37%
Semi-skilled white-collar occupations	49%	56%	70%	22%	44%
Semi-skilled blue-collar occupations	22%	6%	3%	1%	8%
Elementary occupations	24%	6%	4%	1%	11%
Total	100%	100%	100%	100%	100%

N=1736 (employed females, 25–65, not in formal education)

Self-reported (mis)match between educational attainment and the education required for the current job

- Only 1/4 of men and 1/5 of women whose highest education are apprenticeship programmes without maturita work in jobs requiring a higher level of education.
- 1/5 of men and 1/3 of women with apprenticeship programmes without maturita work in jobs requiring lower level of education.

Education required for the current job	Highest education (males)					
	ISCED 2 or less	Voc ISCED 3 access 4	Voc ISCED 3 access 5/6/7 or Voc ISCED 4 access 5/6/7	Gen ISCED 3 access 5/6/7	ISCED 5 or higher	Total
ISCED 2 or less	52%	22%	10%	11%	3%	14%
Voc ISCED 3 access 4	25%	53%	21%	9%	2%	28%
Voc ISCED 3 access 5/6/7 or Voc ISCED 4 access 5/6/7	7%	14%	49%	18%	18%	26%
Gen ISCED 3 access 5/6/7	1%	1%	3%	31%	7%	4%
ISCED 5 or higher	15%	10%	17%	32%	70%	28%
Total	100%	100%	100%	100%	100%	100%

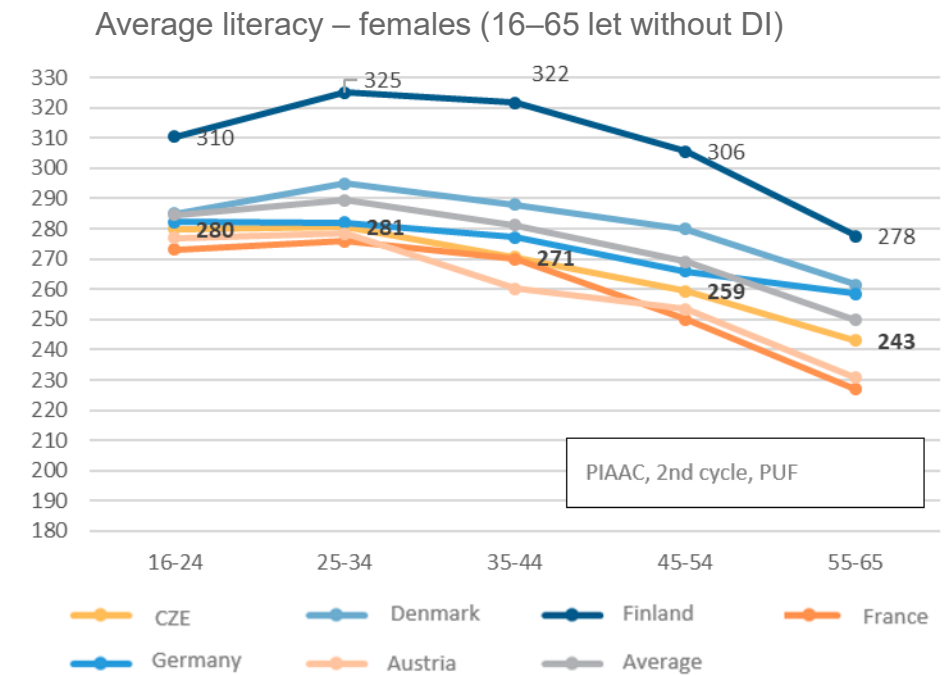
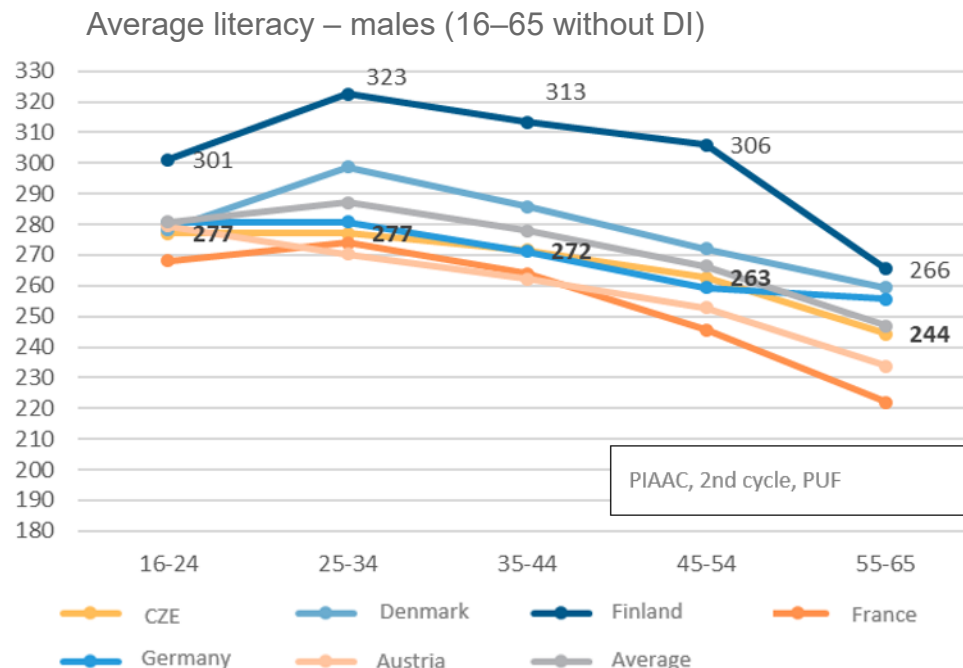
N=1223 (employed males, 25–65, not in formal education, without self-employed)

Education required for the current job	Highest education (females)					
	ISCED 2 or less	Voc ISCED 3 access 4	Voc ISCED 3 access 5/6/7 or Voc ISCED 4 access 5/6/7	Gen ISCED 3 access 5/6/7	ISCED 5 or higher	Total
ISCED 2 or less	76%	33%	10%	7%	2%	16%
Voc ISCED 3 access 4	14%	47%	13%	10%	2%	18%
Voc ISCED 3 access 5/6/7 or Voc ISCED 4 access 5/6/7	6%	9%	48%	19%	18%	25%
Gen ISCED 3 access 5/6/7	0%	1%	7%	35%	12%	9%
ISCED 5 or higher	4%	10%	21%	28%	67%	32%
Total	100%	100%	100%	100%	100%	100%

N=1570 (employed females, 25–65, not in formal education, without self-employed)

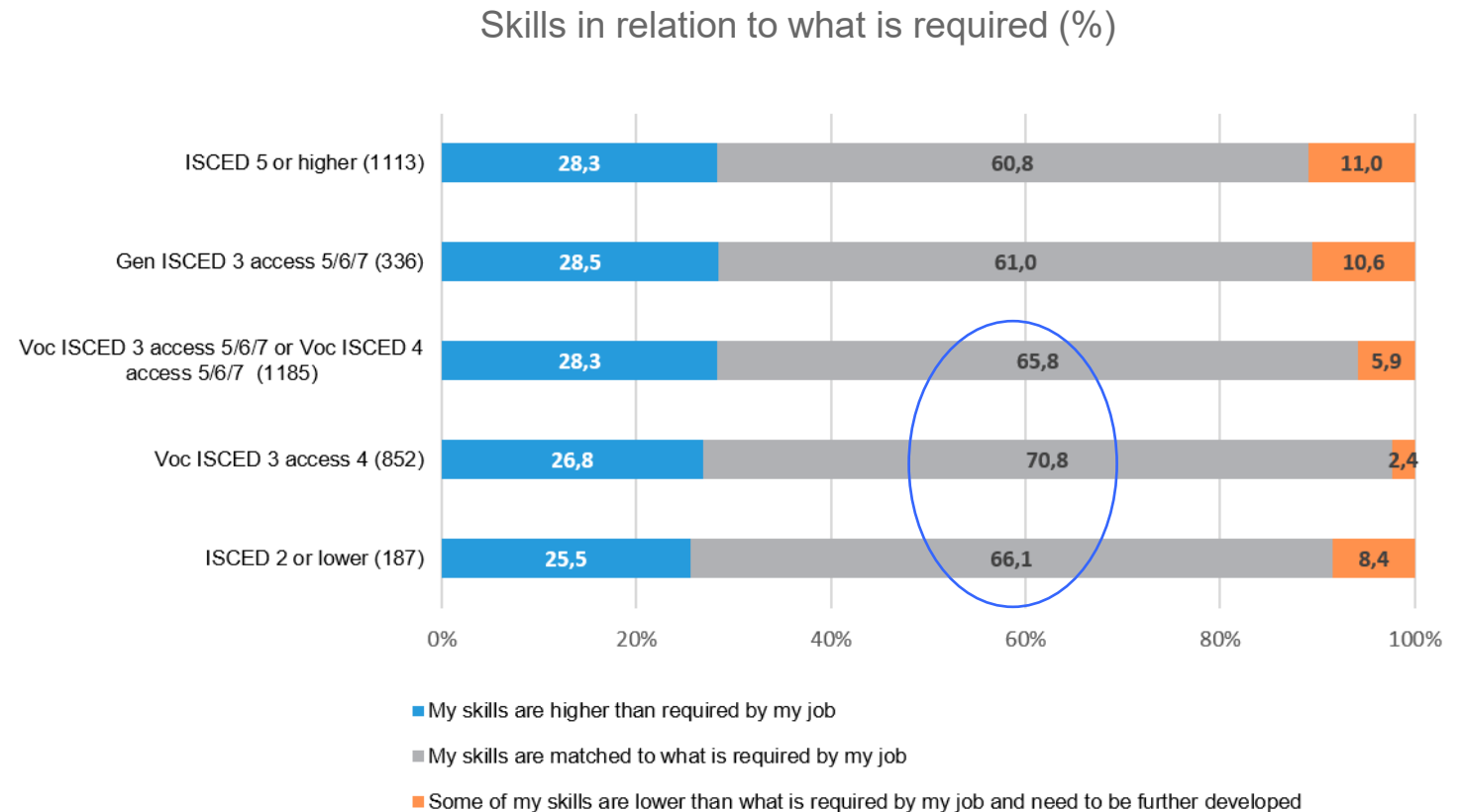
Literacy proficiency by age in selected countries

- Among 16–24-year-olds, both men and women in the Czech Republic perform similarly to their counterparts in Denmark, Germany, and Austria. Their results are significantly lower than those in Finland and significantly higher than those in France.
- In Finland and Denmark, adults aged 25–34 have the highest proficiency levels.
- **Differences** in proficiency between younger and older adults **may reflect the effects of ageing**, as well as **generational differences in the quality and availability of education and training**, including retraining programmes and courses.



(Mis)match between skills and job requirements

- Vocational graduates (with and without matura) were significantly more likely than general upper-secondary and tertiary graduates to report that their skills matched the requirements of their job.
- However, **some working-age apprenticeship graduates were not employed.**
- **Tertiary-educated adults** were significantly more likely than vocational graduates (with or without matura) to report that some of their skills were below the level required by their job.



Skills higher than required

- The least mentioned choice among apprenticeship graduates without maturita is „*Reading and writing skills*“

Skills higher than required - % respondents (multiple choice)					
Economically active (16-65)	ISCED 2	Voc ISCED 3 access 4	Voc ISCED 3 access 5/6/7 or Voc ISCED 4 access 5/6/7	Gen ISCED 3 access 5/6/7	ISCED 5 or higher
Skills in operating machinery/equipment	33%	64%	37%	22%	18%
Team-working or leadership skills	50%	53%	59%	45%	47%
Skills in handling customers/clients, patients or students	31%	44%	53%	53%	48%
Communication and presentation skills	32%	30%	53%	45%	49%
Other skills	30%	30%	23%	27%	23%
Computer or software skills	47%	25%	53%	61%	60%
Skills involving numbers, calculating skills	28%	23%	36%	38%	43%
Project management or organizational skills	12%	22%	42%	30%	42%
Foreign language skills	23%	18%	27%	44%	43%
Reading and writing skills	19%	13%	25%	28%	32%
Don't know	2%	0%	0%	0%	2%
Total	307%	321%	408%	393%	405%

Conclusions and pending questions

- Graduates of apprenticeship programmes are statistically more likely than adults with higher education to be economically inactive.
- However, those who are employed tend to assess their skills as adequate or exceeding the requirements of their positions.
- In the Czech Republic, a segment of the labour market remains composed of occupations that offer limited opportunities to use and develop foundational skills, usually demanding good health and /or strength. This dynamic has the potential to widen the gap between adults (skill levels, full-time employability throughout the working life), which may pose a challenge to social cohesion.
- **Lacking foundational skills and/or motivation for re-skilling or up-skilling, or labour market too restrictive?**
- **What would be the response for perceived skills (mis)matches in personal and civic life?**

Thank you

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(National Pedagogical Institute was responsible for the 2nd cycle)

