

Education and training gaps

Strategic Foresight – driver 8

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Definition

An education or training gap infers that the supply of education and training is not matched to its demand, including what employers expect from skill/capability endowment of newly hired and incumbent staff. This can manifest itself in both skill shortages and skill surpluses.

The focus here is upon the education and training gaps in general and the situation in four sectors: hospitality, construction, health and care, and manufacturing. These are all sectors which have experienced labour shortages if not skill shortages as reported by EURES (2023).

The mismatch between the skills available and those required can be attributed to several market failures, including imperfect information, capital and labour market imperfections, externalities, and institutional failures. These contribute to various types of mismatches, such as over-education, under-education, and horizontal and vertical mismatches. There are also internal skill gaps where the skills of the existing workforce are not matched to the skills their employers require, and external skill gaps where employers face challenges recruiting people with the skills they require from the external labour market.

The education and training gaps can be better expressed with reference to the degree of skills mismatch in the labour market. It addresses the adaptability of education and training systems to respond to various changes which affect the demand for skills, such as the digital and green transitions, but other changes too, such as demographic change and its impact on skills supply (e.g. where there is a decline in the number of young people entering the labour market).

Developments to date

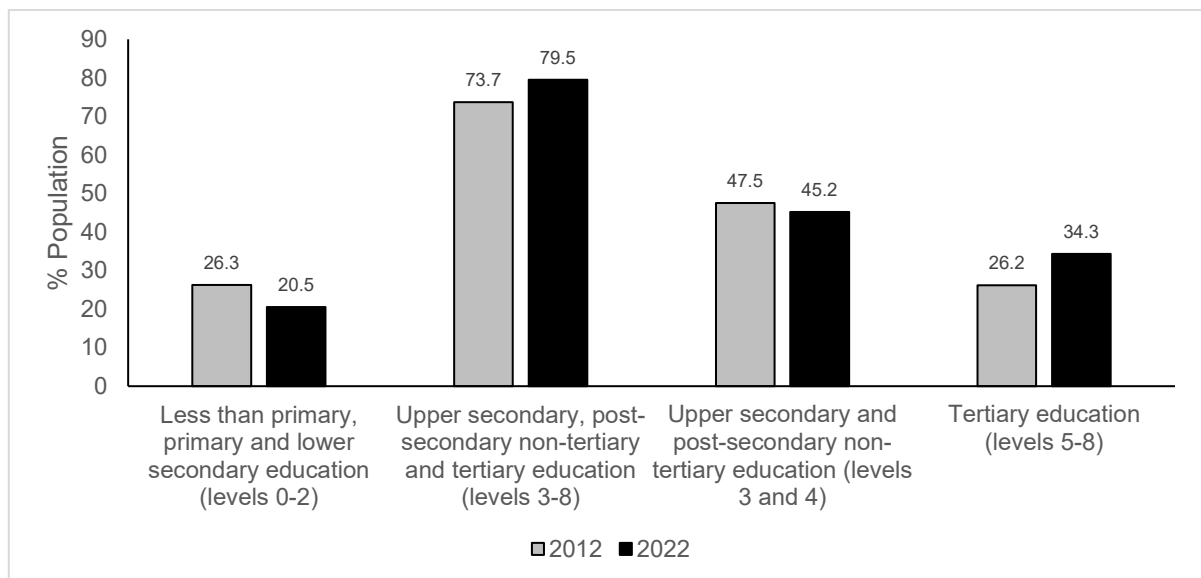
Over the past 25 years, EU policy-making has focused on improving skills supply. It has focused on, amongst other things, the role of vocational education and training (VET), access to lifelong learning, and quality assurance. The 2020 Council Recommendation on VET sets out how to modernise the provision of skills, improve European cooperation in VET, and simplify its governance (Council Recommendation, 2020). The 2020 Skills Agenda (Council of the European Union, 2020) further develops EU skills policy, responding to digital and green transformations and the economic recovery post-COVID-19. The European Year of Skills 2023 highlights the importance of investing in skills in a fair and equitable manner. Recent reports indicate that skills shortages and surpluses can impose costs on the individual, employers and, in aggregate, the state (Béduwé and Giret, 2011).

In the period since 2012 one can observe a number of trends across Europe:

- increases in levels of educational attainment. This is particularly evident with respect to attainment at the tertiary level (see Figure 1);
- an increased emphasis on reskilling and upskilling adult workers to avoid skills obsolescence (and the Recommendation on the Upskilling Pathways, 2016).
- improvements at national and pan-European levels related to the process of skills assessment and skills anticipation. One can observe the development of an infrastructure designed to make education and training systems more responsive to demand from the labour market (e.g. Cedefop, 2020).
- The introduction of systems designed to improve the quality of education and training (especially vocational training – cf. EQAVET).

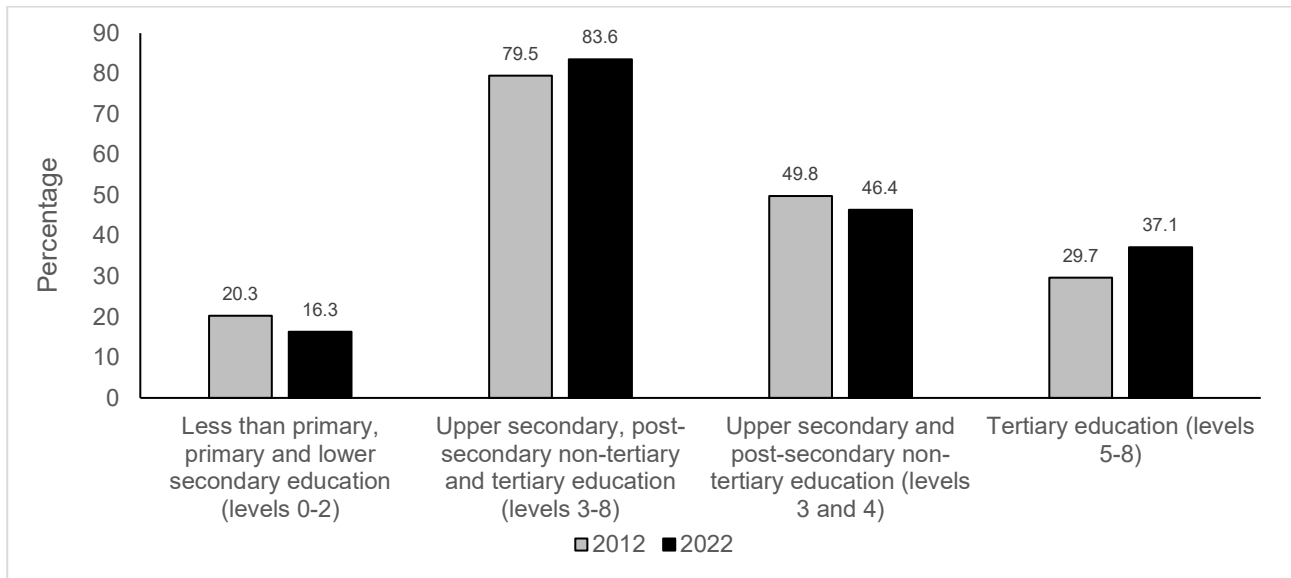
Despite these improvements in both the quantity and quality of provision there are concerns about the extent to which education and training systems produce the skills required by the labour market. This seems to manifest itself in the form of excess skill supply rather than shortages. This is revealed by, for example, the European Skills and Jobs Surveys. The latest survey undertaken during 2021 highlights significant rates of over-skilling:: 37% of the workforce in accommodation and food (representing hospitality), 27% in construction, 26% in health and social care, and 27% in manufacturing (Cedefop, 2022) Over-skilling was particularly noticeable among young workers aged 25 to 34, with approximately 30% of over-skilled individuals in each sector falling within this age group. Employers on the other hand tend to report that there are relatively high levels of skills shortage. A recent Eurobarometer indicates that nearly three quarters of enterprises with 250 or more employees experienced difficulties recruiting people with the right skills (Eurobarometer, 2023). There is a subjective element to the responses of employers and employees to questions about issues to do with skill. If an employer reports that there are skill shortages, there is no guarantee that this is because there are skill shortages rather than terms and condition of employment on offer which are relatively poor such that any improvement in the supply of skills would not necessarily lead to the employer's skill needs being met (EURES, 2023).

Figure 1a: Educational attainment in the EU population of working age, 2012 and 2022



Source: Eurostat population by educational attainment level [edat_lfse_03]

Figure 1b: Educational attainment of those in employment in the EU, 2012 and 2022



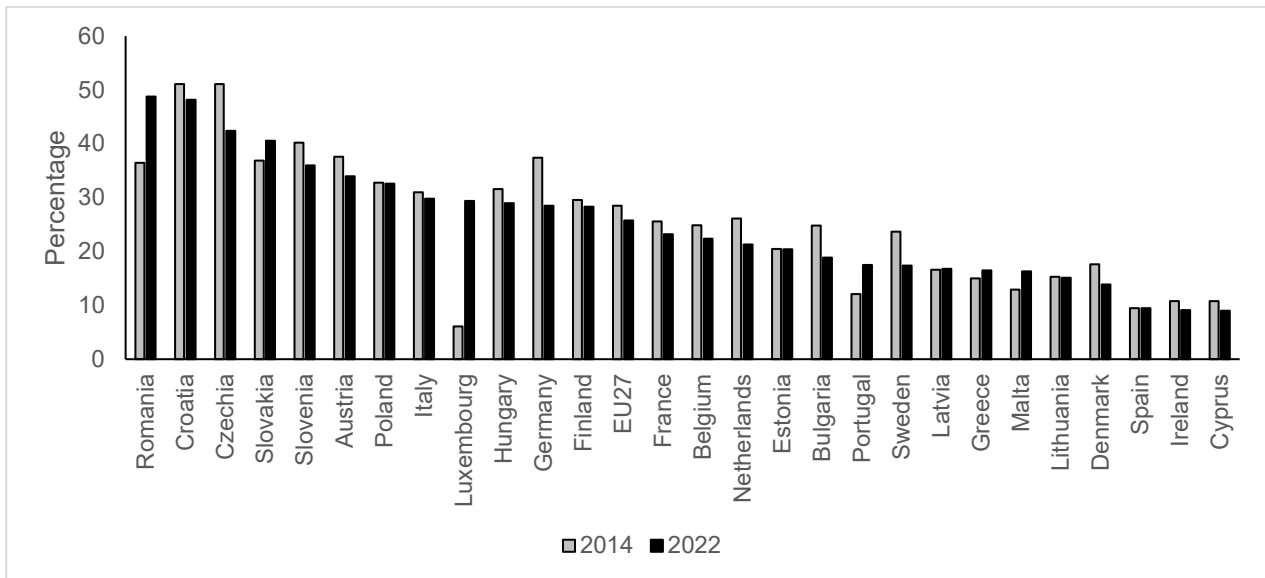
Source: Eurostat

It needs to be borne in mind that changes in overall levels of educational attainment have taken place alongside changes in the types of goods and services produced and the processes employed to manufacture or deliver them. This has placed pressures on education and training systems to adapt the supply of skills to ensure that the skill needs associated with these changes are met.

There are currently in place various initiatives to increase participation in vocational education at both Member State and EU levels. At the EU level, the European Commission's Erasmus+ programme has been instrumental in supporting mobility and cooperation in vocational education, fostering exchanges of good practices among Member States. Additionally, the European Social Fund Plus (ESF+) prioritises vocational education and training (VET) and adult education as key focus areas. With a budget of almost EUR 99.3 billion for the period 2021-2027, the ESF+ is committed to providing crucial support for the EU's employment, social, education, training, and skills policies. At the national level, Germany, for example, has a dual vocational training system, combining practical training in a company with theoretical education in a vocational school, France has an apprenticeship tax that funds apprenticeship training programmes. Employers with a certain number of employees are required to pay this tax, and the funds collected are used to support vocational training and apprenticeship opportunities for young people.

Improving levels of participation in vocational education have proved difficult and reveals substantial variation by country (see Figure 2).

Figure 2: Educational attainment at ISCED levels 3 and 4 by vocational orientation amongst 15- to 34-year-olds, 2014 and 2022



Source: Eurostat Population aged 15-34 by educational attainment level [edat_lfs]

The dynamic nature of the labour market, particularly in the face of rapid technological and ecological transitions, is an important driver of the education and training gap. Sectors such as hospitality, construction, health and care, and manufacturing increasingly have a demand for new sets of skills, notably in digital and green technologies. In the hospitality sector, for example, online operations demand diverse digital skills, while an increase in sustainable tourism practices emphasises the need for green skills. The construction sector faces challenges from the twin transition, needing skills for new building materials and techniques (Cedefop, 2019). The health and care sector, amid demographic changes and technological advancements, demands skills in advanced technology use, patient-centred care, data analytics, and adaptability to emerging home-based and telehealth services. Manufacturing, too, is undergoing a shift, emphasising environmental sustainability skills. Additionally, the sector is witnessing a shift in employment dynamics towards part-time jobs, self-employment, and short-term contracts. This structural change necessitates soft skills such as self-motivation, time management, self-reliance, and the ability to work independently.

In summary, the '2023 Employment and Social Developments in Europe' report (European Commission, 2023) identifies several structural drivers that are poised to reshape skill needs across EU sectors in the coming years. These include:

- **Technological advances:** The increasing reliance on technology in various sectors will elevate the demand for digital skills and enhance the need for transversal skills to mitigate technology-induced job displacement.
- **The green transition:** As consumer preferences shift towards sustainability, new skills will be required to work with eco-friendly materials and techniques.
- **Demographic change:** An ageing population will result in relatively high replacement demands in those sectors which have relatively aged workforces. Where population growth slows or even reverses this has implications for the supply of new entrants to the labour market essentially heightening the competition for hiring young people.

The European Skills and Jobs Survey (ESJS2) (Cedefop, 2022) and the European Company Survey (Eurofound and Cedefop, 2020) also indicate levels of over-skilling or under-skilling. According to this European Company Survey, in only 16% of the establishments all workers have the necessary skills to match the requirements of the job. Slovakia (79%) and Portugal (78%) have the highest percentage of workers matching job requirements, while Greece and Lithuania have the lowest (both 61%). Lithuania leads with the highest average of over-skilled workers (24%), and Bulgaria has the highest proportion of under-skilled workers (18%). Denmark, Poland, Portugal, and Slovakia have the lowest proportion of under-skilled workers (all 10%). There is little variation in the average proportion workers reported to be over-skilled, under-skilled, and workers matching job requirements across sectors (Eurofound and Cedefop, 2020).

However, the incidence of over-skilling and under-skilling is linked to the speed at which skills requirements change (Eurofound and Cedefop, 2020). At the country level, establishments reporting very, or fairly quick changes are highest in France (62%) and Poland (52%), and lowest in Hungary (17%), Estonia, and the Netherlands (both 26%). Across sectors, very or fairly quick changes are most reported in financial services (54%) and least in the industry (30%).

Why skill mismatches occur is typically explained with reference to market failures of one kind or another, including:

- imperfect information: Where employers and individuals are unaware of the economic value of investing in education and training or lack knowledge of market-valued competences. It also relates to having information about the types of training available and how it might be funded (e.g. through training funds);
- capital market imperfections: Relate to challenges in funding training. Employers and individuals may not have access to funding to support the provision of education and training. Training levies and training funds established at national and sometimes sectoral levels can remedy this situation.
- externalities: Benefits from education and training that are not fully captured by the investing party, resulting in sub-optimal provision. Employers may be unwilling to invest in training if they are concerned that once trained, workers leave to find a job with another employer paying more (and who may be able to pay more because they did not have to pay for training);
- institutional failures: These occur when education and training systems are not sufficiently aligned with labour market demands for specific skills and competencies. They could be too focused on delivering the skills they have the capacity to deliver rather than the skills that the labour market requires.

These challenges are acknowledged in policy circles, as evidenced by substantial investments at national and EU levels in providing labour market information to jobseekers and employers (Cedefop, 2019; Ivančić et al., 2023).

Future perspectives

Looking to the future there are a number of drivers which are likely to affect the education and training gap, including:

1. The increased use of new technologies to deliver education and training. This has the potential to substantially improve access to training of various kinds which, when allied to developments such as micro-credentials, can assist with upskilling and reskilling of workers. However, it is important to acknowledge that if there is a substantial shift, for example, to online training, individuals lacking basic digital skills and internet access, as well as those unwilling to engage in such types of training, may face an increased risk of falling behind even further.
2. Institutional developments which make education and training systems more responsive to labour market demands. This has scope to increase the provision of skills and competencies which confer economically valuable skills on individuals. The potential downside of this is that curricula become more narrowly focused on meeting current demand rather than providing more broad-based education and training which might prepare people for future changes in the labour market.
3. Part of the process of making education and training more responsive to labour market demand is the shift towards more vocational provision, especially that which combines work and education (cf. apprenticeships / dual system). As previously mentioned, there are currently in place various initiatives to increase participation in vocational education at both Member State and EU levels (e.g. the European Alliance for Apprenticeships). Nevertheless, improving levels of participation in vocational educational have proved difficult and reveal substantial variation by country.
4. Shifts towards more flexible employment structures such that the degree of attachment between worker and employer is reduced. This has the potential to reduce employer investments in education and training because they cannot appropriate the return.
5. If employers are less willing to fund training (for the reasons set out above), this will increase the pressure on individuals and the state to finance training. There is a risk that this will reduce overall investments in education and training.

Addressing the ongoing developments in the labour market necessitates a multifaceted approach to education and training. Structural reforms are seen to be necessary to align education with labour market needs, as underscored by OECD (2020). This involves a shift in education decision-making, embracing a more collaborative approach involving parents, employers, communities, and students. Personalisation of learning paths, prioritising learning processes over outcomes, and frequent feedback mechanisms are vital. Moreover, Perna (2023) emphasises the need to reconceptualise academic success, moving away from degree-centric benchmarks towards skill-based competencies.

The World Economic Forum (2021) suggests balancing traditional education elements (the 3Rs - reading, writing and arithmetic) with critical 21st-century skills (the 5Cs - critical thinking, creativity, collaboration, communication and coding). In sectors such as hospitality, as pointed out by Liang (2023), the upcoming decade will likely witness the emergence of specialised training programmes, collaborative educational initiatives, and apprenticeship-style programmes to cater for the evolving workforce needs. Micro-credentials are expected to play a significant role in facilitating personalised learning and upskilling.

Hypotheses about the future

H1: Slow and modest adaptation

Until 2030, there is a continuous, but slow and modest adaptation of the education and training offers towards the market needs. The most prominent and urgent requirements voiced by employers and workers are considered and curricula as well as training systems changed accordingly. However, there is no structural and systematic mechanism ensuring long-term solutions to providing education and training satisfying changing labour market needs.

H2: The skills agenda widely realised

The objectives set out in successive EU skills agendas are fulfilled, particularly an enhancement in vocational education and continuous provision of upskilling and reskilling for adults. Education/ training supply is closely aligned to labour market demands, potentially boosting the EU's productivity and competitiveness. This could foster a virtuous cycle where education, training, and economic growth mutually reinforce each other. However, there will likely be variability in the development of education and training across the EU.

H3: Selective skills provision

The green and digital transitions bring about, by 2030, substantial changes in the demand for skills. Education and training systems place substantial effort to identify emerging skill needs and put in place the measures to deliver those skills. Little attention is devoted to skills needs not directly related to the twin transition. Respective education/ training offers become more and more limited and outdated.

References

- Aliu, J., and Aigbavboa, C. (2023). Reviewing the trends of construction education research in the last decade: a bibliometric analysis. *International Journal of Construction Management*, 23(9), 1571-1580.
- Béduwé, C. and Giret, J-F. (2011): "Mismatch of vocational graduates: What penalty on French labour market?", *Journal of Vocational Behaviour*, 78, pp. 68-79
- Cedefop, (2015). *Skill shortages and gaps in European enterprises : striking a balance between vocational education and training and the labour market*, Publications Office. <https://data.europa.eu/doi/10.2801/042499>
- Cedefop (2018). Insights into skill shortages and skill mismatch: learning from Cedefop's European skills and jobs survey. Luxembourg: Publications Office. Cedefop reference series; No 106. <https://www.cedefop.europa.eu/en/publications/3075>
- Cedefop (2019). Construction workers: Skills opportunities and challenges. Retrieved November 16, 2023, from https://www.cedefop.europa.eu/en/data-insights/construction-workers-skills-opportunities-and-challenges-2019-update#_tasks_and_skills
- Cedefop (2019). Handicraft and printing workers: Skills opportunities and challenges. Retrieved November 16, 2023, from https://www.cedefop.europa.eu/en/data-insights/handicraft-and-printing-workers-skills-opportunities-and-challenges-2019-update#_key_facts
- Cedefop (2019). Health professionals: Skills opportunities and challenges. Retrieved November 16, 2023, from <https://www.cedefop.europa.eu/en/data-insights/health-professionals-skills-opportunities-and-challenges-2019-update>
- Cedefop (2019). Hospitality & retail managers: Skills opportunities and challenges. Retrieved November 16, 2023, from https://www.cedefop.europa.eu/en/data-insights/hospitality-retail-managers-skills-opportunities-and-challenges-2019-update#_summary
- Cedefop (2019). The greening of the EU construction sector. Retrieved November 16, 2023, from https://www.cedefop.europa.eu/en/data-insights/greening-eu-construction-sector#_future_skills_needs_drivers
- Cedefop (2022). Setting Europe on course for a human digital transition: new evidence from Cedefop's second European skills and jobs survey. Luxembourg: Publications Office. Cedefop reference series; No 123 <http://data.europa.eu/doi/10.2801/253954>
- Cedefop (2020). Strengthening skills anticipation and matching in Estonia: capitalising on OSKA's potential to realise national ambitions. Luxembourg: Publications Office. <http://data.europa.eu/doi/10.2801/12542>
- Council of the European Union. (2020). *A new impetus for European cooperation in vocational education and training to support the green and digital transitions*. Publications Office of the European Union.
- Council Recommendation (EC) of 24 November 2020 on vocational education and training (VET) for sustainable competitiveness, social fairness and resilience [2020] C 417/01
- ELA (2023). EURES Report on labour shortages and surpluses 2022. Publications Office of the European Union, 2023. <https://www.ela.europa.eu/sites/default/files/2023-09/ELA-eures-shortages-surpluses-report-2022.pdf>
- Eurobarometer (2023) SMEs and Skills Shortages. Brussels: European Commission
- European Commission (2023) Employment and Social Developments in Europe. Brussels: European Commission

- Eurofound and Cedefop (2020), European Company Survey 2019: Workplace practices unlocking employee potential, European Company Survey 2019 series, Publications Office of the European Union, Luxembourg.
- European Commission, Directorate-General for Employment, Social Affairs and Inclusion, (2023). Employment and social developments in Europe 2023, Publications Office of the European Union.
<https://data.europa.eu/doi/10.2767/089698>
- European Ministers of Vocational Education and Training and European Commission. (2002). *Copenhagen Declaration*. https://www.cedefop.europa.eu/files/copenhagen_declaration_en.pdf
- European Ministers of Vocational Education and Training and European Commission. (2020). *Osnabrück Declaration on vocational education and training as an enabler of recovery and just transitions to digital and green economies*. https://www.cedefop.europa.eu/files/osnabrueck_declaration_eu2020.pdf
- Ivančić, I., Ažić, M. L., and Badurina, A. (2023). The Role of Education in the Hospitality Sector - Literature Review. *Tourism & Hospitality Industry*. <https://doi.org/10.20867/thi.26.15>
- Johnson, P. (2019). Education system is failing to equip people with skills they need to work. The IFS. Available at: <https://ifs.org.uk/articles/education-system-failing-equip-people-skills-they-need-work> (accessed: 16 November 2023).
- Krishnan, K. (2020). Our education system is losing relevance. Here's how to unleash its potential. Retrieved November 16, 2023, from <https://www.weforum.org/agenda/2020/04/our-education-system-is-losing-relevance-heres-how-to-update-it/>
- Liang, C. (2023, February 7). Hospitality education of the future. Hospitality insights. Retrieved November 17, 2023, from <https://hospitalityinsights.ehl.edu/hospitality-education-future>
- McGuinness, S., Pouliakas, K., and Redmond, P. (2017). How Useful is the Concept of Skills Mismatch?. IZA Discussion Paper No. 10786, Available at SSRN: <https://ssrn.com/abstract=2979934> or <http://dx.doi.org/10.2139/ssrn.2979934>
- McKinsey (2023). How health systems and educators can work to close the talent gap. McKinsey.com. Retrieved November 17, 2023, from <https://www.mckinsey.com/industries/healthcare/our-insights/how-health-systems-and-educators-can-work-to-close-the-talent-gap>
- OECD (2020). Curriculum (re)design. A series of thematic reports from the OECD Education 2030 project. From <https://www.oecd.org/education/2030-project/contact/brochure-thematic-reports-on-curriculum-redesign.pdf>
- OECD (2022). Trends shaping education 2022. <https://www.oecd-ilibrary.org/sites/6ae8771a-en/index.html?itemId=/content/publication/6ae8771a-en&csp=c08144de6b681428094a3a71a4549454&itemIGO=oecd&itemContentType=book>
- OECD (2023), *OECD Skills Outlook 2023: Skills for a Resilient Green and Digital Transition*, OECD Publishing, Paris, <https://doi.org/10.1787/27452f29-en>.
- Perna, M. (2023). Why Educators And Employers Must Come Together To Cross The Skills Gap. Forbes.com. Retrieved November 17, 2023, from <https://www.forbes.com/sites/markcperna/2023/02/07/why-educators-and-employers-must-come-together-to-cross-the-skills-gap/?sh=10a46064a6af>
- World Economic Forum (2021). 3 ways to disrupt education and help bridge the skills gap. Weforum.org. Retrieved November 17, 2023, from <https://www.weforum.org/agenda/2021/08/3-ways-disrupt-education-bridge-skills-gap/>

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