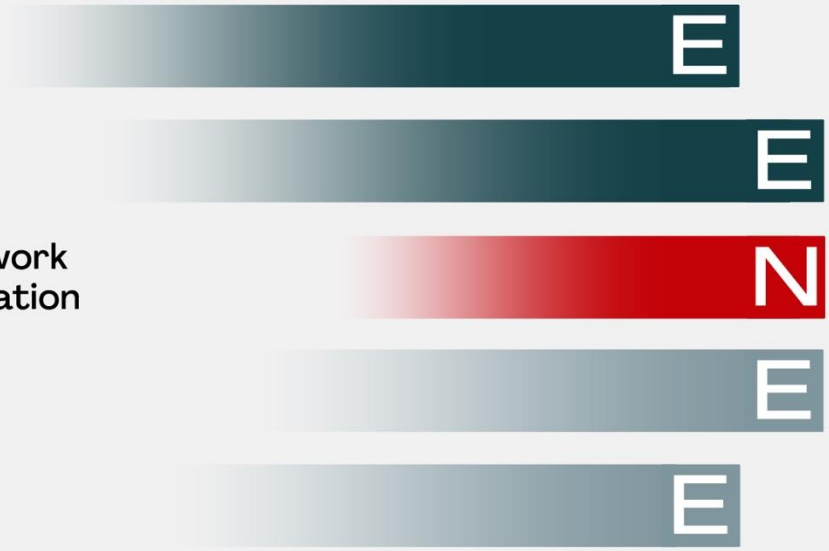

European Expert Network
on Economics of Education

The latest research trends in the field of economics of education: July-December 2022

EENEE Coordination team

Education and Training

PPMi

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ABOUT EENEE

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Important themes and issues for future European Commission's work on the economics of education

This document provides a summary of important themes and issues to inspire future European Commission's work in the field of economics of education and training. The summary highlights specific focus areas covered by recently published research and foresight studies (between July and December 2022) and are relevant to the European Commission's programme 2023[1] and the Directorate General for Education, Youth, Sport, And Culture (DG EAC) Strategic Plan[2] 2020-2024. Reviewed Journals are presented in the table below.

TABLE 1: REVIEWED JOURNALS

JOURNAL	ISSUES IN THE PERIOD	PUBLICATION COUNT
Quarterly Journal of Economics	2	5
Journal of Political Economy	5	5
Journal of Finance	3	0
Econometrica	3	1
Review of Economic Studies	3	5
Journal of Labour Economics	2	7
Journal of the European Economic Association	2	4
Review of Educational Research	3	4
Journal of Economic Growth	2	0
Journal of Human Resources	3	8
Internet and Higher Education	2	2
Journal of Development Economics	3	3
Education Finance and Policy	2	10
Economics of Education Review	3	9
Journal of Human Capital	2	4
Education Next	1	2
International Journal of Educational Research	2	17
Education Economics	3	10
Citizenship, Social and Economics Education	1	2
Economies	6	6
International Journal of Education Economics and Development	2	6
OECD	n/a	4
JRC	n/a	1
World bank	n/a	3
Total	55	120

While tracking research trends in the most prominent academic journals and recent foresight studies, **we observed eight broad themes** relevant to the highlighted priorities and broader context of the economics of education and training. The following table also covers specific topics, providing a quick oversight of key research themes developed in the academic journals that have an economic aspect of education (see Table 2).

The report is structured according to the themes indicated in the table. Articles on each theme are then discussed to give a broader understanding of the issues covered in each theme.

[1] European Commission Work Programme 2023 Accessible at: https://ec.europa.eu/info/strategy-documents/commission-work-programme/commission-work-programme-2023_en.
[2] Strategic Plan 2020-2024 Directorate General for Education, Youth, Sport, And Culture Accessible at: https://ec.europa.eu/info/system/files/eac_sp_2020_2024_en.pdf

TABLE 2: OVERVIEW OF THE TOPICS RELATED TO THE ECONOMICS OF EDUCATION (JULY – DECEMBER 2022)

THEMES	TOPICS
Education and inequalities	– *Improving **early equity** (OECD);* – ***Gender gap in self-evaluations**;* – ***Gender differences** in **risk attitudes** and **self-confidence**;* – *Decreases in labour market incomes for mothers (**child penalty**);* – *Online teaching and gender bias – **gender gap in teaching evaluations** is likely to have important effects on the career progression of women;* – ***Inequalities in the match between student** (women and SES backgrounds) and **degree quality**;* – ***Inequalities in quality match** between **students** and **schools**;* – *Long-run trends in the U.S. **SES—Achievement Gap**;* – *Causal **relationship between education** and **traditional gender role** attitudes.*
Digital education	– *Combinations of **real and virtual experiments promote conceptual understanding**;* – *The **impact of technology** on **student performance**;* – *The **impact of technology** on **communication between schools, teachers, and parents**;* – *Learning with serious games in economics education a systematic review of the **effectiveness of game-based learning** in upper secondary and higher education;* – *Reconstituting teacher professional learning and expertise via the **Apple Teacher digital platform**;* – *The power behind the screen: **educating competent technology users** in the age of digitized inequality.*
Financing education and policy interventions	– ***Cash transfers** following the birth of a first child and their large and **long-lasting effects** on that **child's outcomes**;* – ***Educational cash transfer** and the **probability of schooling/working**;* – *Effect of **losing** Supplemental Security Income (SSI) **benefits** at age 18 on criminal justice and **employment outcomes**;* – ***Increased work** associated with EITC expansions and their **little impact** to the **time mothers devote to active learning and development activities** with their children;* – *The effect of bonuses on teacher retention and student learning in rural schools;* – *Unintended consequences of free college: **decrease of the relative returns to pursuing a teaching career.***
Early childhood development	– *Improving **early equity** (OECD);* – *Impact of parenting programme to the children's development;* – *Child development that highlights the **effect of parent-child interactions** on the **formation of skills**;* – ***Children's removal from abusive** and **neglectful home** significantly **increases test scores** and reduces grade repetition for girls;* – ***Parental leave**, (in)formal childcare and **long-term child outcomes**;* – *Supporting **children's self-regulation development** in **play-based kindergarten** classrooms;* – *Effect of **childhood cognitive skills** on strategic sophistication and **adult outcome**.*
Skills and competencies for the labour market	– *Improving **early equity** (OECD);* – *21st-century **data-literacy skills** for every student;* – ***Limitations of data science in** school **curricula**;* – **Implications of under-confidence and over-confidence in mathematics** at secondary school; – *Track placement and the development **of cognitive and non-cognitive skills in school**;* – *The **Development of Cognitive and Noncognitive Skills in Students** in the Autonomous Province of Trento;* – ***Increase** in the relative labour market return to **logical reasoning skill** as compared to vocabulary knowledge;* – *Key **competencies increasing chance for employment** of students;* – *Link between **entrepreneur schooling** and higher life cycle growth;* – ***Educational and skills mismatches**: unravelling their effects on wages across Europe;* – ***First-in-their-family students** at university: **Gaps in cognitive skills**;* – *Should I get a master's degree?: Evaluating **peer effects on education investment** decisions in the workplace;* – ***Work engagement** fully **mediates** the **relationship between self-efficacy** and a **growth mindset toward active learning;*** – *Do **postsecondary training programmes respond to** changes in the **labour market**?* – **Impact of self-esteem** for the mental well-being, **education, job search,** workaholism, etc.; – **Selective return migration** where those who plan to stay longer **invest more into skill acquisition**.

Teacher education and student performance	– ***Teacher relationship skills*** *and* ***student learning****;* – ***Effects of*** *the simulative "SRL-AIDE"* ***parallel teacher–student programme*** *to the students' metacognition and* ***academic achievement****;* – *Modelling the* ***economic*** *reciprocal* ***relationship between student learning*** *and* ***professor teaching;*** – ***Strengthening Support of Teachers for Students to Improve Learning Outcomes*** *in Mathematics: Empirical Evidence on a Structured Pedagogy Program in El Salvador;* – *"Micro-steps" on the route to successful online* ***professional development for Austrian Early Childhood Educators.***
Education and inclusion	– *Improving* ***early equity*** *(OECD);* – *World Bank. Commitment to Action on Foundational Learning;* – *The* ***equity of exclusionary school discipline****;* – ***Equity in education*** *and* ***equalising education opportunities*** *in Finland;* – *A systematic review of the impact of precision* ***teaching*** *and* ***fluency-building on teaching children diagnosed with autism****;* – ***Special educational needs placement*** *in lower secondary education: the impact of segregated vs. mainstream placement on post-16 outcomes;* – *Substantial* ***shifts toward humanization in mathematics education for disabled students****;* – ***Inclusive education for Ukrainian children****;* – *An ecological, multilingual approach to* ***language learning with newly reunited refugee families*** *in Scotland;* – ***Adult literacy programmes mitigating poverty traps*** *in Afghanistan;* – ***Unintended consequences*** *of improving opportunity for* ***immigrant girls****.*
Covid-19 and education	– ***Learning losses*** *(World bank);* – *University students' profiles of* ***burnout symptoms*** *amid the COVID-19 pandemic in Germany and their* ***relation to concurrent study behaviour*** *and experiences;* – *The* ***impact of COVID-19*** *on Community College enrolment and* ***student success****;* – *A lost generation? The COVID-19 pandemic triggered* ***dramatic learning losses among schoolchildren*** *(JRC);* – *Remote learning engagement and learning outcomes during school closures in Ghana –* ***pandemic related inequalities.***

Source: compiled by the Coordination team.

1.1. Education and inequalities

In the second half of 2022, the theme of inequality was dominated by gender topics in a) self-evaluations, risk attitudes and self-esteem; b) income; c) academic quality match; d) female teaching evaluations and by socioeconomic themes of a) access to high-quality ECEC; b) academic quality match; c) educational attainment. Even though a few studies present evidence from the non-EU countries, they reflect the current EU challenges and the highlighted priority of the equity in education.

Gender gaps

A study by scholars Christine L Exley and Judd B Kessler (2022)[3] showed **a large gender gap in self-evaluations[4]** when describing their performance on a male-type task[5] relating to math and science. No gender gap arises if individuals are asked about their performance on a more female-typed task[6]. According to the authors, this gap arises both when self-evaluations are provided to potential employers, and thus measure self-promotion, and when self-evaluations are not driven by incentives to promote. Moreover, the gender gap in self-evaluations proves to be persistent and arises as early as the sixth grade.

Recent studies have also attributed the majority of the **gender gap to gender differences in** a competitiveness trait, however, recent research found that this effect may be explained by

[3] *Christine L Exley, Judd B Kessler. The Gender Gap in Self-Promotion. The Quarterly Journal of Economics*, Volume 137, Issue 3, August 2022, Pages 1345 1381, https://doi.org/10.1093/qje/qjac003.

[4] Researchers focused on self-evaluations in math and science of 4000 online participants and 10 000 middle school and high-school students. Several types of self-evaluations have been measured: a) self-evaluations by online participants that they knew will be shared with potential employers; b) self-evaluations by online participants elicited privately; c) self-evaluations by school-aged youth elicited privately.

[5] In the context of research a male-typed task is being understood as linked to math and science.

[6] A female-typed task relates to verbal skills.

gender differences in **risk attitudes and self-confidence**. Therefore, author suggests[7] that institutional changes that limit the role of factors such as risk attitudes and confidence, by reducing payment uncertainty or uncertainty about (relative) ability, for example, are more likely to reduce the gender gap. Results also imply that attempts to better understand or reduce gender differences in labour market outcomes would do well to focus on confidence and risk attitudes rather than competitiveness.

On the contrary, the other study by Antonio Filippin (2022)[8] found that evidence on **gender differences in risk attitudes may be smaller** than previously thought. According to the author, studies rooted in the gambling/financial domain that women are more risk averse than men have been used in labour economics studies to explain unequal gender-based outcomes in the labour market. However, researcher argues that beliefs about higher risk aversion among women are stronger than the evidence supporting them (gender differences in risk attitudes are neither large nor ubiquitous) as there is no direct evidence demonstrating that greater female risk aversion can explain why women are under-represented in top-level positions in the labour market. Finding that risk preferences play a limited role, if any, leaves plenty of room for policies aimed at eliminating discrimination and supporting women's participation in the labour market.

Gender gap in income remains an important research topic as well. Researchers[9] explain that women in heterosexual couples continue to experience **significant reductions in labour market income following the birth of children** ('child penalty'), while their partners experience no such income drops. After comparing experiences of same sex couples and heterosexual couples in Norway, research suggests that the child penalty experienced by women in heterosexual couples is primarily explained by preferences and gender norms, with a smaller contribution due to biological costs of birth. Also, researchers found imprecise positive impacts on 'child penalty' from a large Norwegian reform that expanded access to high quality childcare.

Study on online teaching and gender bias[10] indicated that in the semester when teaching moved online (affected by covid-19), **female lecturers were evaluated more poorly** than in previous semesters. The performance of male lecturers was not impacted by the new teaching environment. According to the author, this could have important direct and indirect **effects on the career progression of women**. Author attributes his gendered findings to bias as the results are particularly negative for young female instructors without a permanent contract, and are strongly driven by male students and low achievers. It could also be that students have higher interpersonal expectations of their female instructors, and so if online teaching prevents female lecturers from being as supportive and personable as in face-to-face teaching, that may translate into a greater burden for female instructors.

Gender and socioeconomic gaps

Recent article discussed the quality match between students and universities. Research on the **inequalities in student to degree match**[11] analysed student mismatching to university courses with a particular focus on **potential inequalities in the system affecting women** and **students from lower socioeconomic status (SES) backgrounds**. Authors emphasize that allocating students to well matched courses academically generates the most gains, however, during the research they discover types of students that tend to 'undermatch' academically and in terms of earnings potential. Study showed that lower SES students are more likely to be undermatched (being overqualified to study their degrees). SES inequalities have

[7] Roel van Veldhuizen. Gender Differences in Tournament Choices: Risk Preferences, Overconfidence, or Competitiveness? *Journal of the European Economic Association*, Volume 20, Issue 4, August 2022, Pages 1595–1618, https://doi.org/10.1093/jeea/jvac031.

[8] Antonio Filippin. Gender differences in risk attitudes. *Iza. World of Labor.* October 2022. https://wol.iza.org/uploads/articles/626/pdfs/gender-differences-in-risk-attitudes.pdf.

[9] Martin Eckhoff Andresen and Emily Nix. What Causes the Child Penalty? Evidence from Adopting and Same-Sex Couples. Journal of Labor Economics. Volume 40, Number 4, October 2022, https://www.journals.uchicago.edu/doi/10.1086/718565.

[10] Sara Ayllón. Online teaching and gender bias. *Economics of Education Review.* Volume 89, August 2022, Online teaching and gender bias - ScienceDirect.

[11] Gill Wyness, Lindsey Macmillan, Richard Murphy, Stuart Campbell. Inequalities in student to degree match. *Journal of Labor Economics.* Volume 40, Number 4, October 2022, https://www.journals.uchicago.edu/doi/10.1086/718433.

been sizeable in both academic and income-based measures of match. In contrast to the **large SES gaps in academic match**, only modest differences in this type of match have been found between men and women: men and women with a given set of qualifications tend to enrol in courses with similar entry standards. When examining **earnings-based match**, high-attaining **women attend degrees** around 8 percentiles **lower in potential earnings** than men.

Another research focused on the inequality in educational outcomes in the US. Study by Eric A. Hanushek at al.[12] raised concern about **the socioeconomic status gap in educational achievement** in the US. Results showed that gaps in math, reading, and science achievement between the top and bottom quartiles of the SES distribution have closed by 0.05 standard deviations per decade over this period. According to the authors, at the current pace of closure, the achievement gap would not be eliminated until the second half of the 22nd century. **Research by the European Parliament** also highlights the **link between students' disadvantaged socio-economic status** and **difficulties with schooling** (including early school leaving) within the EU, which in turn increase the probability of poverty in adulthood. The latest monitoring study[13] showed that socio-economic status has an immense effect on educational performance in the EU.

Study by Noelia Rivera-Garrido[14] also explains the **causal relationship between education and traditional gender role attitudes.** While using data from the European Social Survey for 14 European countries, along with a quasi-experimental approach that exploits variation in compulsory schooling across countries and year of birth, researcher shows that for women from a poor family background, education reduces the probability of agreeing with traditional gender norms in more than 11 percentage points.

1.2. Digital education

Research in selected journals show the global focus (including the EU direction to the digital age in education) on the digital learning that can assist in the post covid recovery as well as foster conceptual understanding and help improve educational achievements for students. However, study results do not show consistency in the correlation of the use of digital technologies and student performance.

Liane Platz emphasizes the role of digital game-based learning (GBL) in economics education. The findings of study[15] identify **advantages of GBL concerning subject knowledge**. However, the findings related to fostering motivation are inconsistent. Moreover, students' performance expectations are found to promote learning engagement. Thus, according to the author, GBL is suitable if the target group can recognize the content-related benefit, and if the content is designed to be challenging.

Researchers also analysed **impact of technology on children's performance in Mathematics** economics education. One study[16] provided evidence on the relative effectiveness of **computer-assisted learning** (CAL) in Salvador. Based on the three interventions that aimed to improve learning in mathematics, research found that CAL lessons lead to **larger learning gains** and are **less sensitive to class size** as well as **student ability** than teacher-centered

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[12] Eric A. Hanushek, Jacob D. Light, Paul E. Peterson, Laura M. Talpey & Ludger Woessmann. Long-run Trends in the U.S. SES-Achievement Gap. *Education Finance and Policy.* Volume 17, Issue 4, Fall 2022, https://direct.mit.edu/edfp/article-abstract/17/4/608/112771/Long-run-Trends-in-the-U-S-SES-Achievement-Gap?redirectedFrom=fulltext.

[13] European Commission. Education and Training Monitor 2022. Comparative report. https://op.europa.eu/webpub/eac/education-and-training-monitor-2022/downloads/comparative-report/Education-and-Training-Monitor-Comparative-Report.pdf.

[14] Noelia Rivera-Garrido. Can education reduce traditional gender role attitudes? Economics of Education Review. Volume 89, August 2022, Can education reduce traditional gender role attitudes? - ScienceDirect.

[15] Liane Platz. Learning with serious games in economics education a systematic review of the effectiveness of game-based learning in upper secondary and higher education. *International Journal of Educational Research.* Volume 115, 2022, https://www.sciencedirect.com/science/article/abs/pii/S0883035522001094.

[16] Konstantin Büchel, Martina Jakob, Christoph Kühnhanss, Daniel Steffen, Aymo Brunetti. The Relative Effectiveness of Teachers and Learning Software: Evidence from a Field Experiment in El Salvador. *Journal of Labor Economics.* Volume 40, Number 3, July 2022, https://www.journals.uchicago.edu/doi/abs/10.1086/717727?journalCode=jole.

classes. Study highlighted the value of CAL in an environment with heterogeneous classes and poorly qualified teachers. Impact of technology on students' math performance has also been inspected by Guilherme Hirata (2022) in Brazil.[17] Contrary to most interventions in which computer-aided instruction extends the school day, students played the game during class time for about 2 months. First, second, and third graders who used the software **increased their score on a math test by 0.56σ** in the short term (just after the intervention) and by 0.17σ in the medium term (1 year after the end of the intervention).

Research tendency to talk more about technologies in the classrooms and their impact to student performance is relevant for the European context as well. Study[18] by Jesús Valverde-Berrocoso et al. analysed both the "micro-studies" carried out within university research groups using small samples and over short periods of time and "macro-studies" with large samples and over long periods of time carried out by international organisations. Results show that **"micro studies" indicate evidence of improved performance in educational practices enriched with ICT**. According to the authors, Mathematics and science are the greatest interest to researchers. International **"macro-studies" repeatedly show that frequent use of ICT in the classroom does not establish positive correlations with academic performance**. While reflecting the reasons for such a difference, researchers conclude that educational **technology can be effective to a certain degree depending on how it is used**. Also, they emphasize that contributions of the use of ICT are mainly reflected in the development of new skills and not directly assessed, such as digital competence or self-regulated learning. Authors state that only more in-depth and contextualised studies and the focus on conceptual and cultural differences could explain the phenomenon of **complex relationship between academic performance and ICT.**

Study[19] on the combination of real and virtual experiments in science education indicates that (1) in most cases **combinations of real and virtual experiments promote conceptual understanding** better than a single type of experimentation, and (2) there is no evidence for the superiority of a particular sequence.

Study[20] on the **impact of technology** (new mobile communication application in particular) **on communication** between schools, teachers and parents showed **few subsequent effects** on perceptions about communication quality or student outcomes. Researchers also found that user support lead to higher levels of communication within the app in the treatment year, however, declined in the following year when treatment schools no longer received intensive support.

Importance of the digital power has been analysed by Jennifer N. Ross et al.[21] According to the authors, **understanding the power** dynamics, inequalities, and oppressions at work in and **through digital technologies** stands as a precondition to educating fully literate, fully competent digital citizens and technology users. Researchers argue that it is crucial to introduce students to the language and theoretical frameworks examining what power is and how it functions in order to empower students to critically engage with the tangled ethics and power structures attendant with digital technologies and their data. People-focused technologies and the ethical principles to be applied in the area is expected to shape Europe's digital future and its global influence and power.

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[17] Guilherme Hirata. Play to Learn: The Impact of Technology on Students' Math Performance. *Journal of Human Capital.* Volume 16, Number 3, Fall 2022, https://www.journals.uchicago.edu/doi/abs/10.1086/719846?journalCode=jhc.

[18] Jesús Valverde-Berrocoso, Jesús Acevedo-Borrega and Mario Cerezo-Pizarro. Educational Technology and Student Performance: A Systematic Review. Frontiers in Education. June 2022, https://www.frontiersin.org/articles/10.3389/feduc.2022.916502/full.

[19] Salome Wörner, Jochen Kuhn, and Katharina Scheiter. The Best of Two Worlds: A Systematic Review on Combining Real and Virtual Experiments in Science Education. Review of Educational Research. Volume 92, Issue 6, https://doi.org/10.3102/00346543221079417.

[20] Can Technology Transform Communication Between Schools, Teachers, and Parents? Evidence from a Randomized Field Trial. *Education Finance and Policy.* Volume 17, Issue 3, Summer 2022, https://direct.mit.edu/edfp/article-abstract/17/3/479/97148/Can-Technology-Transform-Communication-Between.

[21] Jennifer N. Ross, Abby Eastman, Nicole Laliberte, Fiona Rawle. The power behind the screen: Educating competent technology users in the age of digitized inequality. International Journal of Educational Research. Volume 115, 2022, https://www.sciencedirect.com/science/article/pii/S0883035522000921.

1.3. Financing education and policy interventions

Recent articles discussed the impact of a) financial and social family support on child's outcomes; b) teacher's financial benefits on children's performance; c) interventions to quality teacher education; d) investments in literacy education for the refugees. While most of the research in this sub-chapter comes from non-EU context, it offers relevant reflections for the European countries as well, with the evidence pointing out to similar challenges and the interventions that help address them.

Family-oriented support

Study by Andrew C. Barr, Jonathan Eggleston & Alexander A. Smith[22] on the lasting effects of cash transfers to new families provided new evidence that **financial aid** following the birth of a first child can have **large impact on child's outcomes.** Data shows that that cash transfers in infancy **increases young adult earnings by at least 1 to 2 percent**, with larger effects for males. These effects show up at earlier ages in terms of **improved math and reading test scores** and a **higher likelihood of high school graduation**. The observed effects on shorter-run parental outcomes suggest that additional liquidity during the critical window following the birth of a first child leads to **persistent increases in family income** that likely **contribute to** the downstream **effects on children's outcomes**. Research in Indonesia[23] showed that **educational cash transfer increases the probability of schooling** for all recipients. Specifically, the likelihood of schooling for the senior secondary school children increases by 19 percentage points. However, there was no effect on the recipient's probability to work.

Research[24] on **comprehensive support programme** that provided education, nutrition and social support services to disadvantaged middle and high school students outside of the regular school day showed the **potential to improve the educational outcomes of disadvantaged students.**

In 2022 analysis indicated the negative impact on financial aid removal for vulnerable people. Researchers[25] estimated the effect of losing Supplemental Security Income (SSI) benefits at age 18 on criminal justice and employment outcomes. Results showed that **in response to SSI removal**, youth are **twice as likely** to be charged with an **illicit income-generating offense than** they are to **maintain steady employment** at $15,000/year in the labour market. Thus, both the introduction and removal of financial assistance can have large impact on future children's outcomes, educational scores and perspectives in the labour market.

One more research[26] shows that **Earned Income Tax Credit (EITC) for mothers** - increases maternal work, however, **it does not affect the time dedicated to children's educational activities.** Thus, results confirm prior evidence that the EITC increases maternal work and reduces time devoted to home production and leisure including time spent with children. However, almost none of the reduction comes from time devoted to "investment" activities. Results suggest that the increased work associated with EITC expansions over time has done

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[22] Andrew Barr & Jonathan Eggleston & Alexander A Smith, 2022. "Investing in Infants: the Lasting Effects of Cash Transfers to New Families," *The Quarterly Journal of Economics*, vol 137(4), https://www.nber.org/papers/w30373.

[23] Amriza N. Wardani, Nadezhda V. Baryshnikova, Danusha Jayawardana. Do secondary school children stay in school and out of the labour market in the presence of an educational cash transfer? *Education Economics*. Volume 30, 2022 – Issue 6, https://www.tandfonline.com/doi/abs/10.1080/09645292.2022.2027874?journalCode=cede20#:~:text=We%20find%20that%20the%20cash,the%20recipient%27s%20probability%20to%20work.

[24] Sarah Komisarow. Comprehensive Support and Student Success: Can Out of School Time Make a Difference? *Education Finance and Policy. Volume 17, Issue 4, Fall 2022, https://direct.mit.edu/edfp/article/17/4/579/108153/Comprehensive-Support-and-Student-Success-Can-Out.*

[25] Manasi Deshpande, Michael Mueller-Smith. Does Welfare Prevent Crime? The Criminal Justice Outcomes of Youth Removed from SSI. *Quarterly Journal of Economics.* Volume 137, Issue 4, November 2022, https://academic.oup.com/qje/article-abstract/137/4/2263/6581195.

[26] Jacob Bastian and Lance Lochner. The Earned Income Tax Credit and Maternal Time Use: More Time Working and Less Time with Kids? *Journal of Labor Economics.* Volume 40, Number 3, July 2022, https://www.journals.uchicago.edu/doi/abs/10.1086/717729?journalCode=jole.

little to reduce the time mothers devote to active learning and development activities with their children.

Teacher benefits and quality education

Beside the financial and social support to children and families and their impact on children's educational outcomes, researchers also pay attention to the effect of the **financial benefits for teachers on the student performance** (mixed results so far). One particular study[27] estimated the direct and indirect effects of recruitment bonuses (aimed at attracting teachers to disadvantaged schools) paid to teachers working in rural schools in Peru on their retention and student learning. Researchers found the bonus produces positive direct effects on teacher retention but also a negative spillover on the probability of filling teacher vacancies in neighbouring schools. This spillover indicates that the bonus is redistributing resources between equally disadvantaged schools. Study also indicated that the bonus had **no direct effects on student learning** and produces a positive spillover on the scores of students in neighbouring schools. Researchers argue that these results are due to the poor pedagogical skills of the teachers being mobilized by the scheme.

Researchers also intend to analyse the interventions of the teacher education system. Study[28] in Chile showed that **making college tuition-free** (or students from households in the bottom 50% of the income distribution) affects the pool of students pursuing a teaching career. Scientists found that free college **decreased the relative returns to pursuing a teaching career**, making it substantially less popular among relatively poor high-performing students who now self-select into programs with higher returns. We find that the reform reduced the academic qualifications of the pool of students entering the teaching programs, which **can negatively affect long-term teacher quality.**

Developments in child and family policy and its impact on the children's performance is an important topic within the EU. Learning losses and educational inequalities (also as a covid-19 effect) accelerated the efforts to improve education overall and develop early childhood education opportunities for all. Investments in high-quality teacher training are highly endorsed. Quality and equity in education along with the teacher education are among the key education areas in the EU.

1.4. Early childhood development

OECD emphasizes the importance of the access to high-quality ECEC that accelerates cognitive development and improves learning for all students and can equalize opportunities for every child from all socioeconomic backgrounds. Recent articles focus on the impact of both home environments and kindergartens for the early development. Also, researchers analyse the correlation between early education and children's cognitive and non-cognitive skills as well as their influence to the adulthood.

Research[29] on **child development in parent-children interactions** showed that through the parent's affection, the child learns and builds mental representations of the self as loved and competent. These mental representations shape the **child's noncognitive skills and foster learning. OECD also highlights that children's home learning environment is critical.** Another study[30] indicated that **removing children** (before age 6) **from families** investigated for **abuse or neglect** significantly **increases test scores** and **reduces grade repetition for girls,** however, there were no detectable impacts for boys.

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[27] Juan F. Castro, Bruno Esposito. The effect of bonuses on teacher retention and student learning in rural schools: a story of spillovers. *Education Finance and Policy* (2022) 17 (4), https://doi.org/10.1162/edfp_a_00348.

[28] Rosa Castro-Zarzur, Ricardo Espinoza, Miguel Sarzosa. Unintended consequences of free college: Self-selection into the teaching profession. *Economics of Education Review.* Volume 89, August 2022, https://www.sciencedirect.com/science/article/abs/pii/S0272775722000371.

[29] Avner Seror. Child Development in Parent-Child Interactions. *Journal of Political Economy.* Volume 130, Number 9, September 2022, https://www.journals.uchicago.edu/doi/abs/10.1086/720398.

[30] Anthony Bald, Eric Chyn, Justine S. Hastings & Margarita Machelett. The Causal Impact of Removing Children from Abusive and Neglectful Homes. Journal of Political Economy. Volume 130, Number 7, July 2022, https://www.journals.uchicago.edu/doi/abs/10.1086/719856.

Study by Natalia Danzer at al.[31] evaluated the effect of an **Austrian parental leave extension** from the child's first to its second birthday on long-term child outcomes. Results showed that longer parental leave **improves on average child health outcomes**, but has **no effect on the child's labour market outcomes.** However, researchers found **significant gains** in all outcomes for children for whom the reform most likely induced a **replacement of informal childcare with maternal care**.

Play-based kindergarten classrooms stimulate the development of self-regulation, researchsays[32]. Study examined strategies utilized by teachers in Canada to **support self-regulation** in play contexts. Results underscore teachers' diverse approaches towards promoting self-regulation and provide practice-based examples for supporting multiple facets of **self-regulation development in play.**

Researchers[33] also examine how **childhood cognitive skills affect** strategic sophistication and **adult outcomes.** Recent study found that childhood theory-of-mind and cognitive ability are both associated with **enhanced adult social skills, higher educational participation, better educational attainment, and lower fertility in young adulthood.** Another research analysed intervention designed to improve the quality of child stimulation within the context of an existing **parenting programme in Colombia** (FAMI). Results show that intervention **improved children's development** and children's nutritional status.

1.5. Skills and competencies for the labour market

Current research trends show the importance of key competences development for the future labour market. Commission work programme 2023 announced the need to boost a workforce with the demanded skills and foster the competitiveness of European companies and to realise the full potential of the digital and green transitions in a socially fair manner. World Bank also mentions the loss in human capital in the context of the covid pandemic. Therefore, rebuilding human capital requires focus on improving learning and skills.

Skills and competencies in school curricula

Researchers are keen to analyse competences included into the school curricula, necessary skills and competences increasing chance for employment, necessity of cognitive and non-cognitive skills at work, individuals internal process of work engagement and active learning, etc.

Evolving school curricula as a response to the world changes have been analysed in recent articles. Researchers[34] point out that seven of the 10 fastest-growing jobs in America are related to data. Also, data is a part of workplace for many people. Therefore, they recommend the **data-based math course integrate early in the math sequence**, so students would have opportunities to integrate data analysis into their **social science, humanities, and science courses**. However, another research on the data skills explains that in the context of hyper-focus in math curriculum, paying not enough attention to teacher recruitment, training, and retention may become an issue. According to the authors, a student's success in math rests heavily on having a highly qualified teacher (see 1.6).

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[31] Natalia Danzer, Martin Halla, Nicole Schneeweis and Martina Zweimüller. Parental Leave, (In)formal Childcare and Long-Term Child Outcomes. *The Journal of Human Resources.* November 2022, 57 (6), http://jhr.uwpress.org/content/early/2020/11/04/jhr.58.2.0619-10257R1.abstract.

[32] Angela Pyle, Erica Danniels, Nicole E. Larsen, Rhonda Martinussen. Supporting children's self-regulation development in play-based kindergarten classrooms. *International Journal of Educational Research.* Volume 116, 2022, https://www.sciencedirect.com/science/article/abs/pii/S0883035522001343.

[33] Eduardo Fe, David Gill, Victoria L. Prowse. Cognitive Skills, Strategic Sophistication, and Life Outcomes. *Journal of Political Economy*, August 2022, https://www.iza.org/publications/dp/13901/cognitive-skills-strategic-sophistication-and-life-outcomes.

[34] Steven D. Levitt, Jeffry Severts. Every Student Needs 21st-Century Data-Literacy Skills. *Education Next.* VOL. 22, NO. 4, https://www.educationnext.org/every-student-needs-21st-century-data-literacy-skills-forum-rethinking-math-education/.

It is worth noting that researchers[35] tend to analyse **the impact of students' self-esteem on their achievements.** Study affirms the possibility that students' calibration bias (the extent of under-confidence/over-confidence) on particular mathematics tasks may link with their generalised subject-level mathematics performance and beliefs. At Grade 9, **calibration bias positively predicted mathematics self-concept, school self-concept, and self-esteem**, which, according to the authors, suggests that education may need to increasingly consider under-confidence/over-confidence as students grow older. According to the OECD[36], **social-emotional skills improve** overall children's **development.**

Researchers[37] also analyse the impact of track placement for the cognitive and non-cognitive skills of high school students. Results show that **track placement** influences cognitive outcomes positively, but **leaves students with worse non-cognitive skills**. Another study on the development of cognitive (CSs) and non-cognitive skills (NCSs) in Italian students showed that the **levels of NCSs affected the ability to learn and improve CSs**.

Skills for the labour market

To deliver the necessary reskilling and upskilling of the European workforce and attract the right skills, 2023 will be the European Year of Skills, says Commission's work programme 2023. Scientific research also examine the topic. Study in Sweden[38] documented the increase in the relative labour market **return to logical reasoning skill** as compared to vocabulary knowledge. An analysis of trends in **school curricula**, and an analysis of occupational characteristics also showed evidence of **increasing emphasis on reasoning.**

Another research[39] emphasized that in today's highly competitive environment, organizations are interested in graduates who have highly developed primarily **soft competencies** and at the same time have the **growth potential**. Within the study scientists identified cross-sectional competencies of university students - **communication style, complexity and self-management, performance individualism, and socially desirable behaviour** – that contribute most to the graduate's success in the labour market. Study[40] on the **entrepreneurial human capital** shows that more educated entrepreneurs exhibit higher life cycle growth.

Impact of self-esteem on **the education** and **job search** has been studied by Botond Kőszegi et al.[41] A substantial literature on dropout from the labour market—including from job search—interprets these patterns by suggesting that many unemployed individuals are "discouraged," underestimating their own value as workers and likelihood of finding work if they tried (Goldsmith et al., 1996; Bjørnstad, 2006; Feather, 2012). According to the authors, this interpretation corresponds closely to the idea that unemployed individuals are typically at low SEPs ("self-esteem personal equilibria").

Researchers[42] also investigate the impact of over-education and over-skilling on workers' wages. Overall, the results suggest the existence of a **wage penalty associated with over-**

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[35] Richard Sheldrake, Tamjid Mujtaba, Michael J. Reiss. Implications of under-confidence and over-confidence in mathematics at secondary school. *International Journal of Educational Research.* Volume 116, 2022, https://www.sciencedirect.com/science/article/pii/S0883035522001598.

[36] OECD. Improving Early Equity: From Evidence to Action. https://www.oecd-ilibrary.org/sites/6eff314c-en/1/3/8/index.html?itemId=/content/publication/6eff314c-en&_csp_=9f6489dad999dee44c2ca3868f4df0c5&itemIGO=oecd&itemContentType=book.

[37] Roxanne Korthals, Trudie Schils, Lex Borghans. Track placement and the development of cognitive and non-cognitive skills. *Education Economics.* Volume 30, 2022, https://www.tandfonline.com/doi/full/10.1080/09645292.2021.2010277.

[38] Santiago Hermo, Miika Päällysaho, David Seim, Jesse M Shapiro. Labor Market Returns and the Evolution of Cognitive Skills: Theory and Evidence. *The Quarterly Journal of Economics*, Volume 137, Issue 4, November 2022, Pages 2309–2361, https://doi.org/10.1093/qje/qjac022.

[39] Hana Urbancova, Pavla Vrabcová, Jan Coufal, Jiří Tobíšek. Key Competencies Increasing Chance for Employment of Students Case Study. *International Journal of Education Economics and Development.* Vol. 13 No. 3, https://www.inderscience.com/info/inarticle.php?artid=123796.

[40] Francisco Queiró. Entrepreneurial Human Capital and Firm Dynamics. *The Review of Economic Studies.* Volume 89, Issue 4, July 2022, https://academic.oup.com/restud/issue/89/4.

[41] Botond Kőszegi, George Loewenstein, Takeshi Murooka. Fragile Self-Esteem. *The Review of Economic Studies*, Volume 89, Issue 4, July 2022, Pages 2026–2060, https://doi.org/10.1093/restud/rdab060.

[42] L. Cultrera, B. Mahy, F. Rycx, G. Vermeylen. Educational and skills mismatches: unravelling their effects on wages across Europe. Education Economics. Volume 30, 2022 - Issue 6, https://www.tandfonline.com/doi/abs/10.1080/09645292.2022.2050995.

education. the results highlight that the workers with **the highest wage penalty** are those who are both **over-educated and over-skilled**.

Study[43] on the individual's internal process of work engagement, active learning and adaptive performance found that **work engagement** fully **mediates the relationship between self-efficacy** and **a growth mindset toward active learning.** A partial mediating effect of active learning between work engagement and adaptive performance was also discovered. Research clarified the direct relationship between growth mindset and work engagement and that active learning underlies individual adaptive performance promotes continuous new knowledge accumulation to produce new innovation inside an organization.

When seeking to gain skills and competences in a form of training, workplace **peer effects on advanced education attainment,** research says. Alexander J. Chesney[44] provides empirical evidence that co-workers' education investment behaviour increases the likelihood of using Employer-Provided Educational Assistance (EPEA) benefits to start and eventually complete a graduate degree. Another scientist[45] analyses **whether postsecondary training programmes** have **kept up with shifts** in the occupational structure **of the labour market** over the past decades. According to the author, there is little empirical evidence specifically examining whether community colleges do, in fact, expand and contract their programs to meet changes in labour demand. Even though there is an overlap between employment demand and community college offerings, discrepancies remain.

Analysis[46] on the dynamics of return migration and human capital accumulation highlights a novel form of **selective return migration** where those who **plan to stay longer invest more into skill acquisition,** with important implications for the assessment of immigrants' career paths and the estimation of their earnings profiles. Study also explains the willingness of immigrants to accept jobs at wages that seem unacceptable to natives.

Scientists[47] are also interested in the connection between the cognitive and non-cognitive skills in performance and science achievement. Research on the first-in-their-family students (FIFS) at university finds **gaps in cognitive skills** as the dominant channel through which FIFS **experience achievement penalties** (have lower grade-point averages and are more likely to drop out after Year 1, a finding driven by females).

1.6. Teacher education and student performance

Several teacher-related topics were present, including the role of teachers, teachers' added-value to student learning and development of human capital, quality teaching. OECD states that child-centered, empowering pedagogies are linked to better child development. Revalorising the teaching professions and providing high-quality teacher training are European priorities as well.

In the study Maximiliaan W. P. Thijssena et al.[48] emphasize that we have a limited understanding of why some teachers are more effective in promoting human capital than others. Researchers use rich, high-quality data from Norway and measure teachers' overall capacity to form positive relationships in the classroom of first graders. They find that **teacher relationship skills affect student learning**. Teacher quality though varies as measured by students' learning outcomes

[43] Widya Nandini, Aurik Gustomo, Dedy Sushandoyo. The Mechanism of an Individual's Internal Process of Work Engagement, Active Learning and Adaptive Performance. Economies. 2022, 10(7), 165; https://doi.org/10.3390/economies10070165.

[44] Alexander J.Chesney. Should I get a master's degree?: Evaluating peer effects on education investment decisions in the workplace. *Economics of Education Review.* Volume 91, December 2022, Should I get a master's degree?: Evaluating peer effects on education investment decisions in the workplace - ScienceDirect.

[45] Michel Grosz. Do Postsecondary Training Programs Respond to Changes in the Labor Market? *Journal of Human Capital.* Volume 16, Number 4, Winter 2022, https://www.journals.uchicago.edu/doi/abs/10.1086/722264.

[46] Jérôme Adda, Christian Dustmann, Joseph-Simon Görlach. The Dynamics of Return Migration, Human Capital Accumulation, and Wage Assimilation. The Review of Economic Studies, Volume 89, Issue 6, November 2022, Pages 2841–2871, https://doi.org/10.1093/restud/rdac003.

[47] Rebecca Edwards, Rachael Gibson, Colm Harmon, Stefanie Schurer. First-in-their-family students at university: Can non-cognitive skills compensate for social origin? Economics of Education Review. Volume 91, December 2022, https://www.sciencedirect.com/science/article/abs/pii/S0272775722000917.

[48] Maximiliaan W. P. Thijssen, Mari Rege, Oddny J. Solheim. Teacher relationship skills and student learning. *Economics of Education Review.* Volume 89, August 2022, https://www.sciencedirect.com/science/article/pii/S0272775722000280.

conditional on past achievement, but also in teacher relationship skills, even within the same school.

Another study[49] analyses the **effects of the parallel teacher-student programme** based on authentic, interactive, and dynamic experiences (AIDE) on metacognition, achievement, and transference between domains (language to math). Results show that the experimental group demonstrated **higher gains** than the control group (exposed to effective learning) **in metacognition and academic achievement.** Metacognition was found to mediated the association between group and academic achievement including transfer effect between domains. Research[50] on the **economic reciprocal relationship between student learning and professor teaching** also suggested that two parties' effort investments (and payoffs) in teaching and learning is endogenously and positively correlated and simultaneously determined.

Intervention[51] in Salvador was dedicated **to support teachers for students to achieve learning outcomes in Mathematics.** A two-year-long experiment on a structured pedagogy programme had positive impacts on math teaching and student study at home. The average one-year impact on mathematics learning was estimated at 0.17 standard deviations, however, the impact became not statistically significant in the second year of research. According to Boaz Barak and Adrian Mims, closing education gaps (in the aftermath of covid-19 pandemic) requires **improved teacher recruitment, training, and retention,** therefore, the issue of math education cannot be addressed only by the curriculum.

Importance of quality teaching depends also on the content and organisation of teacher education. Example[52] of online microlearning courses for Austrian Early childhood educators has been evaluated by researchers. Results showed that **participation in microlearning courses might help improve the professional capabilities of early childhood educators** if needs of the target group are considered. Teacher preparation, readiness to work and culturally responsive pedagogy have been emphasized by the scientists in another research[53]. Findings demonstrated the shift in perspective from a skills-based definition to an understanding of it as a **partnership between student and teacher.**

1.7. Inclusive education

In most cases inclusion and diversity-based educational practices attempt to respond to existing inequalities with the focus on the most vulnerable groups in particular. Countries around the world are invited to endorse the Commitment to Action on Foundational Learning to ensure all children, **including the most marginalized, develop foundational learning to realise their full potential** and participate in society, World Bank says. Equity in education is one of the key European principles which enhanced even more in the aftermath of covid-19 pandemic.

Inclusive education has been an important topic in the latest articles where several vulnerable groups were mentioned including disadvantaged children, refugee children, children having special needs, children of mixed race and ethnicity.

The latest OECD report "Improving early equity" provides evidence on the impact or early education to child's development and his/her academic achievements, cognitive development

[49] Orna Heaysman, Bracha Kramarski. Enhancing students' metacognition, achievement and transfer between domains: Effects of the simulative "SRL-AIDE" parallel teacher–student program. International Journal of Educational Research. Volume 116, 2022, https://www.sciencedirect.com/science/article/abs/pii/S0883035522001483.

[50] Tin-Chun Lin. Modelling the economic reciprocal relationship between student learning and professor teaching: an economic theoretical study and application. *International Journal of Education Economics and Development.* Vol 13 No. 3, https://www.inderscienceonline.com/doi/abs/10.1504/IJEED.2022.123784.

[51] Takao Maruyama. Strengthening Support of Teachers for Students to Improve Learning Outcomes in Mathematics: Empirical Evidence on a Structured Pedagogy Program in El Salvador. International Journal of Educational Research. Volume 115, 2022, Strengthening Support of Teachers for Students to Improve Learning Outcomes in Mathematics: Empirical Evidence on a Structured Pedagogy Program in El Salvador – ScienceDirect.

[52] Eva Pölzl-Stefane, Claudia Geißler. "Micro-steps" on the route to successful online professional development for Austrian Early Childhood Educators. International Journal of Educational Research. Volume 115, 2022, https://www.sciencedirect.com/science/article/pii/S0883035522001173.

[53] Holly Hungerford-Kresser, Carla Amaro-Jimènez, John Wesley White. Beyond standards: College and career readiness and culturally responsive curriculum in teacher preparation. International Journal of Educational Research. Volume 116, 2022, Beyond standards: College and career readiness and culturally responsive curriculum in teacher preparation - ScienceDirect.

and future employment and earnings. It emphasizes **the learning gap between disadvantaged and advantaged children** and **the urgent necessity** to **improve the access to early education** for every child (with the focus on vulnerable groups of children). Recent report[54] on Finland and its Right to Learn Programme to improve quality and equity in early childhood education and care (ECEC), pre-primary and basic education explored the planned reforms within the country. Analysis focussed on a) **financing equity and quality in education;** b) expanding **participation** and strengthen **quality** in **ECEC**; and c) **equalising education opportunities** through strengthening the **local school policy**.

Analysis[55] by Beatrice Schindler Rangvid on **special educational needs** placement in lower secondary education suggests that mainstreaming students **substantially increases enrolment and progress towards the certificate. Earlier mainstreaming** tends to be **more effective**. Academic skills at the end of compulsory schooling are identified as an important mediator.

Study by Paulo Tan et al.[56] aimed to take stock of the current knowledge base of educator and disability research concerning school mathematics, recommending directions for humanizing future research and practice. Results of the analysis point to not only the continued perpetuation of dehumanizing approaches and positioning but also **substantial shifts toward humanization in mathematics education for disabled students.**

In one of the recent reports[57] the equity in school suspension among US students with **different economic background** and between **students of different race** has also been analysed. While black students were more likely to be suspended for fighting and theft, white students were more likely to be suspended for insubordination and disrespect toward faculty. Researchers also found that **economically disadvantaged students** are more likely to be suspended across all types of offenses.

In terms of the integration of immigrants and refugees, latest OECD reviews show the focus on the **educational support for Ukrainian students** in their host countries. Report[58] emphasizes a **vital role of school in addressing refugee learners' needs** and in promoting their social and emotional learning and well-being which are essential components of ensuring **children's inclusion in education and in society**. OECD highlights the key considerations for policy makers including a) holistic pedagogical strategies and classroom interventions, non-formal learning opportunities and therapeutic support; b) initial assessments within the schools (with the guidance of education ministries) to determine the most appropriate forms of support; c) teacher support for their high-quality continuous professional learning; d) access to expert psychological support.

Another recent study[59] suggests that an **ecological, multilingual approach to language learning** could play an **essential role in the integration of Scotland's refugees**. The paper argues that newly reunited refugee families can be better supported through an ecological, multilingual approach by presenting empirical data from a five-month teaching study where teacher/researcher became a learner of the participants' languages to explore the shift in learner/teacher power dynamics created through mutual language learning sessions as

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[54] OECD Education Policy Perspectives. Finland's Right to Learn Programme. September 2022, https://www.oecd-ilibrary.org/education/finland-s-right-to-learn-programme_65eff23e-en.

[55] Beatrice Schindler Rangvid. Special educational needs placement in lower secondary education: the impact of segregated vs. mainstream placement on post-16 outcomes. *Education Economics.* Volume 30, 2022 - Issue 4, Special educational needs placement in lower secondary education: the impact of segregated vs. mainstream placement on post-16 outcomes: Education Economics: Vol 30, No 4 (tandfonline.com).

[56] Paulo Tan, Alexis Padilla, and Rachel Lambert. A Critical Review of Educator and Disability Research in Mathematics Education: A Decade of Dehumanizing Waves and Humanizing Wakes. Review of Educational Research. Volume 92, Issue 6, https://doi.org/10.3102/00346543221081874.

[57] Donna B. Gilleskie, Chunxiao Li. The equity of exclusionary school discipline. Economics of Education Review. Volume 90, October 2022, https://www.sciencedirect.com/science/article/abs/pii/S0272775722000760.

[58] OECD Policy Responses on the Impacts of the War in Ukraine. Supporting the social and emotional well-being of refugee students from Ukraine in host countries. November, 2022, https://www.oecd.org/ukraine-hub/policy-responses/supporting-the-social-and-emotional-well-being-of-refugee-students-from-ukraine-in-host-countries-af1ff0b0/.

[59] Sarah Cox, Alison Phipps. An ecological, multilingual approach to language learning with newly reunited refugee families in Scotland. *International Journal of Educational Research.* Volume 115, 2022, An ecological, multilingual approach to language learning with newly reunited refugee families in Scotland - ScienceDirect.

linguistic hospitality. The findings illustrate the **participants' increased feelings of confidence and empowerment in their learning.**

The impact of a literacy program for internally displaced female refugees in Afghanistan has been evaluated in one of the recent studies[60]. The results of the evaluation showed that the programme was beneficial both for the women who received it and for their children who were 2.6% points more likely to be enrolled in secondary school. Overall, the evaluation results suggested that **adult literacy programmes** may **mitigate** intergenerational **poverty traps**.

Study conducted in 2020 by Gordon B Dahl et al.[61] on the consequences of improving opportunity for immigrant girls shows that expanding opportunities (e.g. automatic birthright citizenship to eligible immigrant children) for them can have the **unintended consequence of reducing girls well-being**, since identity-concerned parents will constrain their daughter's choices. Research in Germany indicated that birthright citizenship **lowers measures of life satisfaction and self-esteem for immigrant girls**. In contrast, immigrant boys experience, if anything, an improvement in well-being and little effect on other outcomes.

1.8. Covid-19 and education

In the past six months articles related to Covid-19 pandemic mainly focused on the learning losses for high-school, college and university students within the EU and globally. According to the World Bank, covid-related losses in skills can have an impact on the future youth income and countries' economic prospects. Recent articles analysed the impact of learning losses on a) the income, b) burnout symptoms, c) inequalities (especially for the most vulnerable), and d) higher education enrolment reductions.

World Bank announced that **learning losses** from Covid-19 could **cost** this generation of students close to $17 trillion in **lifetime earnings**. Data says that children around the world have lost an enormous amount of classroom time. Globally, education systems were on average fully closed for in-person schooling about 141 instructional days, with the world's poorest children disproportionately affected. World Bank announces that school closures have deepened existing disparities in education, with learning losses worst for the most vulnerable children who could not be reached by digital and broadcast remote learning programmes.

One of the consequences of the pandemic has also been **burnout symptoms for university students** in Germany. Authors of the study[62] explain that most students belonged to profiles with low to moderate burnout symptoms. For the most part results also show no impact of students' sociodemographic characteristics on this evidence. The profiles differed concerning procrastination, study- and life satisfaction, and dropout intentions. According to the researchers, the distinct profiles broaden knowledge about intra-individual differences in students' burnout experiences and underpin the need for tailored interventions.

As the European Commission[63] have recently announced, the pandemic-induced **remote schooling** appears to have had dire consequences for educational achievement and **deepened inequalities** (especially those from vulnerable socio-economic backgrounds). The study identified Bulgaria, Germany, Slovakia, and Spain as the likely hardest hit by the lack of in-classroom teaching. some children might not have progressed at all during school closure, as also concluded in a recent Dutch study. Other countries, like Norway, Denmark, Austria, and

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[60] Chiara Kofol, Ben Kriechel, Tim Vetter. Does literacy benefit internally displaced and returnee women and children? Education Economics. Volume 30, 2022 – Issue 5, https://www.tandfonline.com/doi/abs/10.1080/09645292.2021.2001789.

[61] Gordon B. Dahl, Christina Felfe, Paul Frijters, Helmut Rainer. Caught between Cultures: Unintended Consequences of Improving Opportunity for Immigrant Girls. *Review of Economic Studies.* Volume 89, Issue 5, October 2022, https://academic.oup.com/restud/article-abstract/89/5/2491/6478299.

[62] Derya Turhaan, Theresa Schnettler, Anne Scheunemann, Christopher K. Gadosey, Lena S. Kegel, Lisa Bäulke, Daniel O. Thies, Laura Thomas, Ulrike Buhlmann, Markus Dresel, Stefan Fries, Detlev Leutner, Joachim Wirth, Carola Grunschel. University students' profiles of burnout symptoms amid the COVID-19 pandemic in Germany and their relation to concurrent study behavior and experiences. *International Journal of Educational Research.* Volume 116, 2022, https://www.sciencedirect.com/science/article/pii/S0883035522001550.

[63] EC Joint Research Center. A lost generation? The COVID-19 pandemic triggered dramatic learning losses among schoolchildren. https://joint-research-centre.ec.europa.eu/jrc-news/lost-generation-covid-19-pandemic-triggered-dramatic-learning-losses-among-schoolchildren-2022-10-24_en.

Latvia were, in contrast, less severely affected. Overall, it seems that learning losses happened globally - inequalities in remote learning opportunities offered by public and private schools have also been documented in Ghana[64].

The impact on students' enrolment in the US higher education system has also been among the discussed topics. Analysis[65] revealed that **enrolment reductions** were largest among black and Latinx students, and were larger among continuing students than first-time students. Enrolment changes were substantial across a wide range of fields and were large for both vocational courses and academic courses.

[64] Sharon Wolf, Elisabetta Aurino, Noelle M.Suntheimer, Esinam A.Avornyo, Edward Tsinigo, Jasmine Jordan, Solomon Samanhiya, J.Lawrence Aber, Jere R.Behrman. Remote learning engagement and learning outcomes during school closures in Ghana. International Journal of Educational Research. Volume 115, 2022, https://www.sciencedirect.com/science/article/abs/pii/S0883035522001318.

[65] George Bulman, Robert Fairlie. The Impact of COVID-19 on Community College Enrollment and Student Success: Evidence from California Administrative Data. *Education Finance and Policy*. Volume 17, Issue 4Fall 2022, https://direct.mit.edu/edfp/article/17/4/745/112566/The-Impact-of-COVID-19-on-Community-College.

Bibliography

Alexander J.Chesney. Should I get a master's degree?: Evaluating peer effects on education investment decisions in the workplace. *Economics of Education Review.* Volume 91, December 2022, Should I get a master's degree?: Evaluating peer effects on education investment decisions in the workplace - ScienceDirect.

Andrew Barr & Jonathan Eggleston & Alexander A Smith, 2022. "Investing in Infants: the Lasting Effects of Cash Transfers to New Families," *The Quarterly Journal of Economics*, vol 137(4), https://www.nber.org/papers/w30373.

Angela Pyle, Erica Danniels, Nicole E. Larsen, Rhonda Martinussen. Supporting children's self-regulation development in play-based kindergarten classrooms. *International Journal of Educational Research.* Volume 116, 2022, https://www.sciencedirect.com/science/article/abs/pii/S0883035522001343.

Anthony Bald, Eric Chyn, Justine S. Hastings & Margarita Machelett. The Causal Impact of Removing Children from Abusive and Neglectful Homes. *Journal of Political Economy.* Volume 130, Number 7, July 2022, https://www.journals.uchicago.edu/doi/abs/10.1086/719856.

Antonio Filippin. Gender differences in risk attitudes. *Iza. World of Labor.* https://wol.iza.org/uploads/articles/626/pdfs/gender-differences-in-risk-attitudes.pdf

Avner Seror. Child Development in Parent-Child Interactions. *Journal of Political Economy.* Volume 130, Number 9, September 2022, https://www.journals.uchicago.edu/doi/abs/10.1086/720398.

Beatrice Schindler Rangvid. Special educational needs placement in lower secondary education: the impact of segregated vs. mainstream placement on post-16 outcomes. *Education Economics.* Volume 30, 2022 - Issue 4, Special educational needs placement in lower secondary education: the impact of segregated vs. mainstream placement on post-16 outcomes: Education Economics: Vol 30, No 4 (tandfonline.com).

Botond Kőszegi, George Loewenstein, Takeshi Murooka. Fragile Self-Esteem. *The Review of Economic Studies*, Volume 89, Issue 4, July 2022, Pages 2026–2060, https://doi.org/10.1093/restud/rdab060.

Chiara Kofol, Ben Kriechel, Tim Vetter. Does literacy benefit internally displaced and returnee women and children? Education Economics. Volume 30, 2022 – Issue 5, https://www.tandfonline.com/doi/abs/10.1080/09645292.2021.2001789.

Giorgio Vittadini,Giuseppe Folloni, Caterina Sturaro. The Development of Cognitive and Noncognitive Skills in Students in the Autonomous Province of Trento. *Economies.* 2022, 10(7), 169; https://doi.org/10.3390/economies10070169.

Guilherme Hirata. Play to Learn: The Impact of Technology on Students' Math Performance. *Journal of Human Capital.* Volume 16, Number 3, Fall 2022, https://www.journals.uchicago.edu/doi/abs/10.1086/719846?journalCode=jhc.

Can Technology Transform Communication Between Schools, Teachers, and Parents? Evidence from a Randomized Field Trial. *Education Finance and Policy.* Volume 17, Issue 3, Summer 2022, https://direct.mit.edu/edfp/article-abstract/17/3/479/97148/Can-Technology-Transform-Communication-Between.

Chiara Kofol, Ben Kriechel, Tim Vetter. Does literacy benefit internally displaced and returnee women and children? *Education Economics.* Volume 30, 2022 - Issue 5, https://doi.org/10.1080/09645292.2021.2001789.

Christine L Exley, Judd B Kessler. The Gender Gap in Self-Promotion. *The Quarterly Journal of Economics*, Volume 137, Issue 3, August 2022, Pages 1345–1381, https://doi.org/10.1093/qje/qjac003.

Derya Turhaan, Theresa Schnettler, Anne Scheunemann, Christopher K. Gadosey, Lena S. Kegel, Lisa Bäulke, Daniel O. Thies, Laura Thomas, Ulrike Buhlmann, Markus Dresel, Stefan Fries, Detlev Leutner, Joachim Wirth, Carola Grunschel. University students' profiles of burnout symptoms amid the COVID-19 pandemic in Germany and their relation to concurrent study behavior and experiences. *International Journal of Educational Research.* Volume 116, 2022, https://www.sciencedirect.com/science/article/pii/S0883035522001550.

Donna B. Gilleskie, Chunxiao Li. The equity of exclusionary school discipline. Economics of Education Review. Volume 90, October 2022, https://www.sciencedirect.com/science/article/abs/pii/S0272775722000760.

EC Joint Research Center. A lost generation? The COVID-19 pandemic triggered dramatic learning losses among schoolchildren. https://joint-research-centre.ec.europa.eu/jrc-news/lost-generation-covid-19-pandemic-triggered-dramatic-learning-losses-among-schoolchildren-2022-10-24_en.

Eduardo Fe, David Gill, Victoria L. Prowse. Cognitive Skills, Strategic Sophistication, and Life Outcomes. *Journal of Political Economy*, August 2022, https://www.iza.org/publications/dp/13901/cognitive-skills-strategic-sophistication-and-life-outcomes.

Eric A. Hanushek, Jacob D. Light, Paul E. Peterson, Laura M. Talpey & Ludger Woessmann. Long-run Trends in the U.S. SES-Achievement Gap. *Education Finance and Policy.* Volume 17, Issue 4, Fall 2022, https://direct.mit.edu/edfp/article-abstract/17/4/608/112771/Long-run-Trends-in-the-U-S-SES-Achievement-Gap?redirectedFrom=fulltext.

Eric Isenberg, Jeffry Max, Philip Gleason, Jonah Deutsch. Estimating the "Effective Teaching Gap". *Education Next.* Vol. 22, No. 4, Fall 2022, https://www.educationnext.org/estimating-the-effective-teaching-gap.

European Commission. Education and Training Monitor 2022. Comparative report. https://op.europa.eu/webpub/eac/education-and-training-monitor-2022/downloads/comparative-report/Education-and-Training-Monitor-Comparative-Report.pdf.

European Parliament. Breaking cycles of disadvantage through education. https://www.europarl.europa.eu/RegData/etudes/IDAN/2021/698826/EPRS_IDA(2021)698826_EN.pdf.

Eva Pölzl-Stefane, Claudia Geißler. "Micro-steps" on the route to successful online professional development for Austrian Early Childhood Educators. *International Journal of Educational Research.* Volume 115, 2022, https://www.sciencedirect.com/science/article/pii/S0883035522001173.

Francisco Queiró. Entrepreneurial Human Capital and Firm Dynamics. *The Review of Economic Studies.* Volume 89, Issue 4, July 2022, https://academic.oup.com/restud/issue/89/4.

George Bulman, Robert Fairlie. The Impact of COVID-19 on Community College Enrollment and Student Success: Evidence from California Administrative Data. *Education Finance and Policy*. Volume 17, Issue 4Fall 2022, https://direct.mit.edu/edfp/article/17/4/745/112566/The-Impact-of-COVID-19-on-Community-College.

Gill Wyness, Lindsey Macmillan, Richard Murphy, Stuart Campbell. Inequalities in student to degree match. *Journal of Labor Economics.* Volume 40, Number 4, October 2022, https://www.journals.uchicago.edu/doi/10.1086/718433.

Gordon B. Dahl, Christina Felfe, Paul Frijters, Helmut Rainer. Caught between Cultures: Unintended Consequences of Improving Opportunity for Immigrant Girls. *Review of Economic Studies.* Volume 89, Issue 5, October 2022, https://academic.oup.com/restud/article-abstract/89/5/2491/6478299.

Hana Urbancova, Pavla Vrabcová, Jan Coufal, Jiří Tobíšek. Key Competencies Increasing Chance for Employment of Students Case Study. *International Journal of Education Economics and Development.* Vol. 13 No. 3, https://www.inderscience.com/info/inarticle.php?artid=123796.

Holly Hungerford-Kresser, Carla Amaro-Jimènez, John Wesley White. Beyond standards: College and career readiness and culturally responsive curriculum in teacher preparation. *International Journal of Educational Research.* Volume 116, 2022, Beyond standards: College and career readiness and culturally responsive curriculum in teacher preparation - ScienceDirect.

Amriza N. Wardani, Nadezhda V. Baryshnikova, Danusha Jayawardana. Do secondary school children stay in school and out of the labour market in the presence of an educational cash transfer? *Education Economics*. Volume 30, 2022 - Issue 6, https://www.tandfonline.com/doi/abs/10.1080/09645292.2022.2027874?journalCode=cede20#:~:text=We%20find%20that%20the%20cash,the%20recipient%27s%20probability%20to%20work.

Jacob Bastian and Lance Lochner. The Earned Income Tax Credit and Maternal Time Use: More Time Working and Less Time with Kids? *Journal of Labor Economics.* Volume 40, Number 3, July 2022, https://www.journals.uchicago.edu/doi/abs/10.1086/717729?journalCode=jole.

Jennifer N. Ross, Abby Eastman, Nicole Laliberte, Fiona Rawle. The power behind the screen: Educating competent technology users in the age of digitized inequality. *International Journal of Educational Research.* Volume 115, 2022, https://www.sciencedirect.com/science/article/pii/S0883035522000921.

Jérôme Adda, Christian Dustmann, Joseph-Simon Görlach. The Dynamics of Return Migration, Human Capital Accumulation, and Wage Assimilation. *The Review of Economic Studies*, Volume 89, Issue 6, November 2022, Pages 2841–2871, https://doi.org/10.1093/restud/rdac003.

Juan F. Castro, Bruno Esposito. The effect of bonuses on teacher retention and student learning in rural schools: a story of spillovers. *Education Finance and Policy* (2022) 17 (4), https://doi.org/10.1162/edfp_a_00348.

Konstantin Büchel, Martina Jakob, Christoph Kühnhanss, Daniel Steffen, Aymo Brunetti. The Relative Effectiveness of Teachers and Learning Software: Evidence from a Field Experiment in El Salvador. *Journal of Labor Economics.* Volume 40, Number 3, July 2022, https://www.journals.uchicago.edu/doi/abs/10.1086/717727?journalCode=jole.

L. Cultrera, B. Mahy, F. Rycx, G. Vermeylen. Educational and skills mismatches: unravelling their effects on wages across Europe. Education Economics. Volume 30, 2022 - Issue 6, https://www.tandfonline.com/doi/abs/10.1080/09645292.2022.2050995.

Liane Platz. Learning with serious games in economics education a systematic review of the effectiveness of game-based learning in upper secondary and higher education. *International Journal of Educational Research.* Volume 115, 2022, https://www.sciencedirect.com/science/article/abs/pii/S0883035522001094.

Manasi Deshpande, Michael Mueller-Smith. Does Welfare Prevent Crime? The Criminal Justice Outcomes of Youth Removed from SSI. *Quarterly Journal of Economics.* Volume 137, Issue 4, November 2022, https://academic.oup.com/qje/article-abstract/137/4/2263/6581195.

Martin Eckhoff Andresen and Emily Nix. What Causes the Child Penalty? Evidence from Adopting and Same-Sex Couples. *Journal of Labor Economics.* Volume 40, Number 4, October 2022, https://www.journals.uchicago.edu/doi/10.1086/718565.

Maximiliaan W. P. Thijssen, Mari Rege, Oddny J. Solheim. Teacher relationship skills and student learning. *Economics of Education Review.* Volume 89, August 2022, https://www.sciencedirect.com/science/article/pii/S0272775722000280.

Michel Grosz. Do Postsecondary Training Programs Respond to Changes in the Labor Market? *Journal of Human Capital.* Volume 16, Number 4, Winter 2022, https://www.journals.uchicago.edu/doi/abs/10.1086/722264.

Natalia Danzer, Martin Halla, Nicole Schneeweis and Martina Zweimüller. Parental Leave, (In)formal Childcare and Long-Term Child Outcomes. *The Journal of Human Resources.* November 2022, 57 (6), http://jhr.uwpress.org/content/early/2020/11/04/jhr.58.2.0619-10257R1.abstract.

Natalie Bau. Estimating an Equilibrium Model of Horizontal Competition in Education. *Journal of Political Economy.* Volume 130, Number 7, July 2022, https://www.journals.uchicago.edu/doi/abs/10.1086/719760.

Noelia Rivera-Garrido. Can education reduce traditional gender role attitudes? *Economics of Education Review.* Volume 89, August 2022, Can education reduce traditional gender role attitudes? - ScienceDirect.

OECD. Education at a Glance 2022. https://www.oecd.org/education/education-at-a-glance/.

OECD Education Policy Perspectives. Finland's Right to Learn Programme. September 2022, https://www.oecd-ilibrary.org/education/finland-s-right-to-learn-programme_65eff23e-en.

OECD. Improving Early Equity: From Evidence to Action. https://www.oecd-ilibrary.org/sites/6eff314c-en/1/3/8/index.html?itemId=/content/publication/6eff314c-en&_csp_=9f6489dad999dee44c2ca3868f4df0c5&itemIGO=oecd&itemContentType=book.

OECD Policy Responses on the Impacts of the War in Ukraine. Supporting the social and emotional well-being of refugee students from Ukraine in host countries. November, 2022, https://www.oecd.org/ukraine-hub/policy-responses/supporting-the-social-and-emotional-well-being-of-refugee-students-from-ukraine-in-host-countries-af1ff0b0/.

Orazio Attanasio, Helen Baker-Henningham, Raquel Bernal, Costas Meghir, Diana Pineda, Marta Rubio-Codina. Early Stimulation and Nutrition: The Impacts of a Scalable Intervention. *Journal of the European Economic Association.* Volume 20, Issue 4, August 2022, https://academic.oup.com/jeea/article/20/4/1395/6516938.

Orna Heaysman, Bracha Kramarski. Enhancing students' metacognition, achievement and transfer between domains: Effects of the simulative "SRL-AIDE" parallel teacher–student program. International Journal of Educational Research. Volume 116, 2022, https://www.sciencedirect.com/science/article/abs/pii/S0883035522001483.

Paulo Tan, Alexis Padilla, and Rachel Lambert. A Critical Review of Educator and Disability Research in Mathematics Education: A Decade of Dehumanizing Waves and Humanizing Wakes. *Review of Educational Research.* Volume 92, Issue 6, https://doi.org/10.3102/00346543221081874.

Per Engzell, Arun Frey, Mark D. Verhagen. Learning Loss Due to School Closures During the COVID-19 Pandemic. SocArXiv Papers | Learning Loss Due to School Closures During the COVID-19 Pandemic (osf.io).

Rebecca Edwards, Rachael Gibson, Colm Harmon, Stefanie Schurer. First-in-their-family students at university: Can non-cognitive skills compensate for social origin? *Economics of Education Review.* Volume 91, December 2022, https://www.sciencedirect.com/science/article/abs/pii/S0272775722000917.

Richard Sheldrake, Tamjid Mujtaba, Michael J. Reiss. Implications of under-confidence and over-confidence in mathematics at secondary school. *International Journal of Educational Research.* Volume 116, 2022, https://www.sciencedirect.com/science/article/pii/S0883035522001598.

Roel van Veldhuizen. Gender Differences in Tournament Choices: Risk Preferences, Overconfidence, or Competitiveness? *Journal of the European Economic Association*,

Volume 20, Issue 4, August 2022, Pages 1595–1618, https://doi.org/10.1093/jeea/jvac031.

Rosa Castro-Zarzur, Ricardo Espinoza, Miguel Sarzosa. Unintended consequences of free college: Self-selection into the teaching profession. *Economics of Education Review.* Volume 89, August 2022, https://www.sciencedirect.com/science/article/abs/pii/S0272775722000371.

Roxanne Korthals, Trudie Schils, Lex Borghans. Track placement and the development of cognitive and non-cognitive skills. *Education Economics.* Volume 30, 2022, https://www.tandfonline.com/doi/full/10.1080/09645292.2021.2010277.

Salome Wörner, Jochen Kuhn, and Katharina Scheiter. The Best of Two Worlds: A Systematic Review on Combining Real and Virtual Experiments in Science Education. *Review of Educational Research.* Volume 92, Issue 6,https://doi.org/10.3102/00346543221079417.

Santiago Hermo, Miika Päällysaho, David Seim, Jesse M Shapiro. Labor Market Returns and the Evolution of Cognitive Skills: Theory and Evidence. *The Quarterly Journal of Economics*, Volume 137, Issue 4, November 2022, Pages 2309–2361, https://doi.org/10.1093/qje/qjac022.

Sara Ayllón. Online teaching and gender bias. *Economics of Education Review.* Volume 89, August 2022, Online teaching and gender bias - ScienceDirect.

Sarah Cox, Alison Phipps. An ecological, multilingual approach to language learning with newly reunited refugee families in Scotland. *International Journal of Educational Research.* Volume 115, 2022, An ecological, multilingual approach to language learning with newly reunited refugee families in Scotland - ScienceDirect.

Sarah Komisarow. Comprehensive Support and Student Success: Can Out of School Time Make a Difference? *Education Finance and Policy. Volume 17, Issue 4, Fall 2022, https://direct.mit.edu/edfp/article/17/4/579/108153/Comprehensive-Support-and-Student-Success-Can-Out.*

Sharon Wolf, Elisabetta Aurino, Noelle M.Suntheimer, Esinam A.Avornyo, Edward Tsinigo, Jasmine Jordan, Solomon Samanhiya, J.Lawrence Aber, Jere R.Behrman. Remote learning engagement and learning outcomes during school closures in Ghana. International Journal of Educational Research. Volume 115, 2022, https://www.sciencedirect.com/science/article/abs/pii/S0883035522001318.

Steven D. Levitt, Jeffry Severts. Every Student Needs 21st-Century Data-Literacy Skills. *Education Next.* VOL. 22, NO. 4, https://www.educationnext.org/every-student-needs-21st-century-data-literacy-skills-forum-rethinking-math-education/.

Steven Lewis. An Apple for teacher (education)? Reconstituting teacher professional learning and expertise via the Apple Teacher digital platform. *International Journal of Educational Research.* Volume 115, 2022, An Apple for teacher (education)? Reconstituting teacher professional learning and expertise via the Apple Teacher digital platform - ScienceDirect.

Takao Maruyama. Strengthening Support of Teachers for Students to Improve Learning Outcomes in Mathematics: Empirical Evidence on a Structured Pedagogy Program in El Salvador. *International Journal of Educational Research.* Volume 115, 2022, Strengthening Support of Teachers for Students to Improve Learning Outcomes in Mathematics: Empirical Evidence on a Structured Pedagogy Program in El Salvador - ScienceDirect.

The World Bank. Commitment to Action on Foundational Learning. Commitment to Action on Foundational Learning (worldbank.org).

The World Bank. Learning in Crisis: Prioritizing education & effective policies to recover lost learning. https://www.worldbank.org/en/news/immersive-story/2022/09/16/learning-in-crisis-prioritizing-education-effective-policies-to-recover-lost-learning.

Tin-Chun Lin. Modelling the economic reciprocal relationship between student learning and professor teaching: an economic theoretical study and application. *International Journal of Education Economics and Development.* Vol 13 No. 3, https://www.inderscienceonline.com/doi/abs/10.1504/IJEED.2022.123784.

Widya Nandini, Aurik Gustomo, Dedy Sushandoyo. The Mechanism of an Individual's Internal Process of Work Engagement, Active Learning and Adaptive Performance. *Economies.* 2022, 10(7), 165; https://doi.org/10.3390/economies10070165.

World Bank. Learning Losses. *https://thedocs.worldbank.org/en/doc/e52f55322528903b27f1b7e61238e416-0200022022/related/WBG-LearningLosses-flier-10-09-22-e-version.pdf.*