



European  
Commission

**EENEE**

European Expert Network  
on Economics of Education

# The latest research trends in the field of economics of education: January-June 2023

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Education and  
Training

**PPMi**

**Please cite this publication as:**

EENEE (2023). 'The latest research trends in the field of economics of education: January-June 2023', EENEE report.

**ABOUT EENEE**

EENEE is an advisory network of experts working on economics of education and training. The establishment of the network was initiated by the European Commission's Directorate-General for Education and Culture and is funded by the Erasmus+ Programme. PPMi is responsible for the coordination of the EENEE network. More information on EENEE and its deliverables can be found on the network's website [www.eenee.eu](http://www.eenee.eu). For any inquiries, please contact us at: [eenee@ppmi.lt](mailto:eenee@ppmi.lt).

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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 January and June 2023) and are relevant to the European Commission's programme 2023<sup>1</sup> and the Directorate General for Education, Youth, Sport, And Culture (DG EAC) Strategic Plan<sup>2</sup> 2020-2024. Reviewed Journals are presented in the table below.

This summary of the most relevant articles from top-ranked journals includes the following major topics:

- Factors explaining educational outcomes
- Social and educational inequalities
- Teachers' professional development and burnout effects
- Human capital and adult learning
- Mental health, environmental education and female teaching in STEM

*Table 1. Reviewed journals*

<b>Journal</b>	<b>Issues in the period</b>	<b>Publication count</b>
Quarterly Journal of Economics	3	2
Journal of Political Economy	6	7
Journal of Finance	4	0
Econometrica	3	0
Review of Economic Studies	4	2
Journal of Labour Economics	2	6
Journal of the European Economic Association	3	1
Review of Educational Research	4	8
Journal of Economic Growth	2	1
Journal of Human Resources	3	8
Internet and Higher Education	3	7
Journal of Development Economics	4	5
Education Finance and Policy	2	4
Economics of Education Review	3	18
Journal of Human Capital	2	0
Education Next	2	1
International Journal of Educational Research	3	10
Education Economics	4	5
Citizenship, Social and Economics Education	1	1
Economies	6	0
International Journal of Education Economics and Development	3	4
<i>OECD</i>	n/a	3
<i>JRC</i>	n/a	2
<i>World bank</i>	n/a	3
<i>UNESCO</i>	n/a	3
<b>Total</b>	<b>66</b>	<b>101</b>

<sup>1</sup> [European Commission Work Programme 2023](#)

<sup>2</sup> [Strategic Plan 2020-2024 Directorate General for Education, Youth, Sport, And Culture](#)

While tracking research trends in the most prominent academic journals and recent foresight studies (see Table 1), we observed **five 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. Several articles on each theme are then discussed to give a broader understanding of the issues covered in each theme. Even though some of the studies present evidence from the non-EU countries, may also reflect some of the EU challenges and priorities.

*Table 2. The main themes discovered in the journals*

<b>Themes</b>	<b>ARTICLES</b>
<b>Factors explaining educational outcomes Teachers', parents', classmates' impact</b>	<ul style="list-style-type: none"> <li>- The Multidimensional Impact of Teachers on Students</li> <li>- Improving students' financial literacy by training teachers using an online professional development module</li> <li>- High-Ability Influencers? The Heterogeneous Effects of Gifted Classmates</li> <li>- Tutoring in (online) higher education: Experimental evidence</li> <li>- When Parents Decide: Gender Differences in Competitiveness</li> <li>- Mothers Working during Preschool Years and Child Skills: Does Income Compensate?</li> </ul>
<b>Factors explaining educational outcomes Effect of online teaching and digitalisation</b>	<ul style="list-style-type: none"> <li>- Special Issue: Rethinking educational practices and responsibilities in the light of digitalisation</li> <li>- Race to the Tablet? The Impact of a Personalized Tablet Educational Program</li> <li>- The mediating role of learner empowerment in the relationship between the community of inquiry and online learning outcomes</li> <li>- Online teaching, procrastination and student achievement</li> <li>- The effect of goal-setting prompts in a blended learning environment—evidence from a field experiment</li> </ul>
<b>Factors explaining educational outcomes Role of feedback and other support mechanisms for students</b>	<ul style="list-style-type: none"> <li>- What is a Good School, and Can Parents Tell? Evidence on the Multidimensionality of School Output</li> <li>- Do timing and reference frame of feedback influence high-stakes educational outcomes?</li> </ul>
<b>Social and educational inequalities</b>	<ul style="list-style-type: none"> <li>- Educational inequality due to lack of validity: A methodological critique of the Dutch school system</li> <li>- The Effect of School Tracking on Student Achievement and Inequality: A Meta-Analysis</li> <li>- Recommendations about inclusive pedagogy for Spanish faculty members in the area of Social and Legal Sciences</li> <li>- Equity and Inclusion in Education. Finding Strength through Diversity (OECD)</li> <li>- Organization hybridity in the Dutch early childhood education and care system: Organization logic in relation to quality and inclusion</li> <li>- Increasing early childhood education and care participation can promote women's employment (JRC)</li> <li>- Capturing the perspectives of students with autism on their educational experiences: A systematic review</li> </ul>

	<ul style="list-style-type: none"> <li>- Immigrant students' acculturation profile and reading competence development in secondary school and beyond</li> <li>- Pencils Down? Computerized Testing and Student Achievement</li> <li>- A typology of adolescents' technology use before and during the COVID-19 pandemic: A latent profile analysis</li> <li>- A Systematic Review of Student Disability and Race Representation in Universal School-Based Social and Emotional Learning Interventions for Elementary School Students</li> <li>- Socio-economic gaps in educational aspirations: do experiences and attitudes matter?</li> <li>- Gender gaps in early wage expectations</li> </ul>
<b>Teachers' professional development and burnout effects</b>	<ul style="list-style-type: none"> <li>- The False Dichotomy between More &amp; More Effective Public Spending on Education: Lessons from Country Experiences (The World Bank)</li> <li>- A Synthesis of Professional Development Targeting Literacy Instruction and Intervention for English Learners</li> <li>- Research-based teacher education in Norway – a longitudinal perspective</li> <li>- Development of professional vision and pedagogical content knowledge during initial teacher education</li> <li>- Teacher burnout and physical health: A systematic review</li> </ul>
<b>Human capital and adult learning</b>	<ul style="list-style-type: none"> <li>- Techno-capital, cultural capital, and the cultivation of academic social capital: The case of adult online college students</li> <li>- Lifelong learning and employment outcomes: evidence from Sweden</li> <li>- The effects of cooperation in the development of study curricula between HEI and employers, in increasing the employment rate - the case of Kosovo</li> <li>- The value of formal host-country education for the labour market position of refugees: Evidence from Austria</li> <li>- Workplace Incentives and Organizational Learning</li> <li>- Optimal Allocation of Seats in the Presence of Peer Effects: Evidence from a Job Training Program</li> </ul>
<b>Mental health, environmental education and female teaching in STEM</b>	<ul style="list-style-type: none"> <li>- Re-examining the relationship between education and adult mental health in the UK: A research note</li> <li>- Can school environmental education programs make children and parents more pro-environmental?</li> <li>- The Impact of Advisor Gender on Female Students' STEM Enrollment and Persistence</li> </ul>

### 1.1. Factors explaining students' educational outcomes

In the first half of 2023, the theme of educational outcomes has been widely explored. Articles included in this review, have specifically focused on a) teachers', parents', classmates' impact; b) effect of online learning/teaching and other digitalisation means; c) role of feedback and support mechanisms.

#### *Teachers', parents', classmates' impact*

Research confirms that teachers' impact on student educational outcomes is crucial. Nathan Petek and Nolan G. Pope (2023) analysed relation between teacher quality and

students' performance including both **student achievement and behaviour elements** in the US. Authors found that both measures of **teacher quality affect students' high school performance** - simulation that uses both measures improved most **long-term student outcomes by over 50%**, compared to a policy that uses test scores alone. (Petek, Pope, 2023). Even though the analysis was conducted outside the EU, it accurately reflects global tendency to spotlight the importance of teachers' role as well as their actual impact to educational outcomes.

Study conducted in Flanders (Belgium) evaluated whether a scalable **online teacher professional development (OTPD) module** that requires little time investment enhances **students' financial literacy**. Data showed the increase in students' financial knowledge (higher scores), but did not improve financial behaviour. (Compen, et al, 2023).

David Hardt, Markus Nagler and Johannes Rincke (2023) researched the **effectiveness of remote peer tutoring in German higher education system**. Study shows that programme **improved study behaviour**, increased contact to other students and **reduced outcome inequality** as well as **tutored students achieved around 30% more credits**. (Hardt, et al, 2023).

Study on causal impact of intellectually gifted students on their nongifted classmates' school achievement, enrolment in post-compulsory education, and occupational choices showed a **positive effect of exposure to gifted students on peers' school achievement in both math and language** in Switzerland. Larger effects were observed among male students and high-achievers, and female students, as research explained, benefited primarily from female gifted students (Balestra, et al, 2023).

In terms of parents' competitiveness choices for their children, recent study in Norway showed that parents choose **more competition for their sons than daughters** (likely explained by parents' beliefs about their children's competitiveness preferences) that **may predict children's long-term educational outcomes** (Tungodden, et al, 2023). It is worth noting, that this research acknowledges the existence of gender-based perceptions among parents related to children's preferences and educational future.

Another research discusses the **relation between increasing mother's labour supply** during a child's preschool years and **midchildhood and teenage outcomes** in Norway. Results suggest a **negative, insignificant direct effect** from increasing mother's hours on **child test scores**, however, **increased family income** creates a **positive total effect on test scores** (26% of a standard deviation) for a 10-hour increase in mother's weekly hours in preschool years (Nicoletti, et al, 2023). This article directly reflects the EU priority to promote equal economic independence and women's representation in the labour market. Also, it touches some aspects of early childhood education and care.

#### *Effect of online teaching and digitalisation*

A topical issue appears to be **digitalisation** and **online learning environment**. Several studies emerged measuring **online teaching and its impact to student learning outcomes**. It is important to highlight that online learning outcomes include wide range of **behavioural, emotional, and cognitive aspects of student engagement**.

One of the most recent articles in Austria offers to rethink the educational practices in the light of digitalisation aiming to unravel the **relationships between digital technologies and their significance for education**. Researchers demonstrate the potential of **technology** (personalized educational tablets in particular) **to enhance student learning in Math** that, in their opinion, could serve as a cheaper alternative to high-intensity tutoring for school districts without funding or labour supply for extensive tutoring programs. (Palczek, et al, 2023).

Another research focused on the creation of meaningful and **effective online learning experiences** in Higher education. The findings highlight the significant **mediating role of learner empowerment** and offer valuable insights into the **design of productive online learning** communities (Sun, Yang, 2023). In addition to this, Maria De Paola, Francesca Gioia and Vincenzo Scoppa (2023) investigated the **role of procrastination as a moderator of the impact of online teaching on student performance** in Italy. Study indicated that the negative influence on **performance varies significantly according to student tendency to procrastinate** with online teaching being particularly detrimental for students affected by present-bias problems. It also mentions the public debate on self-discipline being key factor to succeeding in an online learning environment. (De Paola, et al, 2023).

Erwin Amann and Sylvi Rzepka (2023) analysed the **effects of sending out goal-setting prompts to students in a blended learning environment** with bi-weekly quizzes in Germany. According to the experts, the randomized field experiment in a large mandatory economics course showed promising results as the treated **students outperform the control group**. Also, treated students **use the online learning platform earlier** in the semester and **attempt more online exercises** compared to the control group. (Amann, Rzepka, 2023)

#### *Role of feedback and other support mechanisms for students*

Latest research also highlights the importance of **other support mechanisms** as well as they seem to have a huge impact on the academic results and test scores for the students. In this context the **multidimensionality of school output** was explored by Diether W Beuermann, C Kirabo Jackson, Laia Navarro-Sola and Francisco Pardo (2023). Results suggest that evaluations based solely on test scores (leaving aside dropout, teen motherhood, formal labour market participation, etc.) may be misleading about the benefits of school choice (particularly for low-achieving students), and education interventions more broadly. (Beuermann, et al, 2023).

Regarding the improvement of educational outcomes, some articles analysed **student support mechanisms** such as timely provided **feedback** or impact of motivation and other ways to support learning. In a field experiment with fifth and sixth graders in German secondary schools, students received feedback about their rank level or the change in their rank in math either a few days or immediately before the school year's final math exam. **Early feedback** overall **enhanced exam performance** while **late feedback worsened it** (Fischer, Wagner, 2023).

It is worth noticing that some aspects of support mechanisms analysed in the articles overlap with elements discussed in the previous subchapters (e.g. learner empowerment, teachers' role, etc.). This tendency manifests the mixture of elements that may significantly influence educational outcomes and, therefore, could help to improve the learning process for students.

## **1.2. Social and educational inequalities**

Several articles in the past half of the year were dedicated to the social inequalities and vulnerabilities in education. Research showed that educational imbalances happen due to the a) lack of validity of judgments on various levels of the educational system; b) lack of inclusive education and limited evidence on current practices and interventions; c) differences in the migrant acculturation; d) limited access to digital means for students; e) belonging to disadvantaged families; and f) gender bias.

Research conducted in the Netherlands discovered that **many students fail to reach minimal skill levels and underachieve with respect to their own learning capacities** and potential especially when their parents do not speak the language or



cannot afford tutoring to exploit this potential. In this article experts argue that a **lack of validity of judgments on various levels of the educational system** has a big impact for the emerging educational inequalities. (Scheider, et al, 2023). Éder Terrin and Moris Triventi demonstrated the **significantly positive effects of sorting secondary students into different tracks or classrooms** on the **inequality levels** of an educational system (Terrin, Triventi, 2023).

As another study in Spain showed, the **teaching strategies that promote inclusion** (inclusive pedagogy) do not only benefit students with disabilities, but **have a general positive effect on all students** (Domenech, et al, 2023). This is crucial in the current context due to the demographic shifts, migration and refugee crisis, rising inequalities, and climate change (OECD, 2023).

**Inclusivity** aspects are also crucial in **pre-school education**. Research in the Netherlands investigated whether differences in quality and inclusion in a hybrid ECEC system can be explained by organization logics. Results indicated that **engaged professional organizations outperform** other organization types with regard to quality and inclusion by investing in professional development, connecting to local communities and expressing a clear social mission. Researchers also reflect on the **role of day care in reducing inequalities and preventing early education gaps**. (Romijn, et al, 2023) According to an assessment conducted by the Joint Research Centre (2023), providing formal childcare to 40%, 50%, 60% and 65% of children under 3 would lead to **remarkable increases in the labour supply of mothers**.

Study by Jessica Zoe Zanuttini investigated methods used in the existing research to capture the **perspectives of autistic students about educational experiences** such as bullying, transition, and wellbeing. Researcher emphasized that autistic participants should be included in research and instrument design process since they rarely provide feedback on methods used to elicit their perspectives. (Zanutti, 2023)

Another study explained the **differences in reading competence** between immigrant and non-immigrant students in Germany and their variation **depending on the acculturation profile** – integrated immigrant students show better reading competence development than assimilated, separated, and indifferent immigrant students. (Thürer, 2023)

Research conducted in the US suggests that **computer-based testing** as a popular assessment format reveals **a digital divide in terms of access to computers** at school and at home and may **exacerbate student achievement gaps**. Study showed a significant negative impact of digital testing on test scores of multiple subjects particularly for **students in poor households**. The smaller effect in schools where technology is more readily available has been found implying that school-level investments could mitigate the effect. (Gordanier, et al, 2023)

Scalable **intervention to Math tutoring** was described in one of the latest research<sup>i</sup> in the Netherlands. It showed that targeting **low-income communities** with scalable interventions can substantially **reduce the income-achievement gaps**. (De Ree, et al, 2023).

Another study conducted in Germany explained the **increase of adolescents' technology use** in terms of both, study-related and social purpose. Researchers also argued that **adolescents from educationally disadvantaged families still appear to be at risk of being left behind** by the even more rapid digitization of the COVID-19 pandemic. (Kastorff, et al, 2023)

Additionally, study on the **socio-economic gap in post-compulsory educational aspirations** in England indicated a **significant gap in aspirations to stay in education**, to **follow the academic** rather than the vocational **route**, and to **attend university**. The

findings suggest that **investing in self-esteem building** and attribution training programmes within schools **could contribute to equalising educational outcomes**. (Agasisti, et al, 2023)

Eventually, the effects of having time for family as career motive and being first-generation college student are associated with **large penalties in female wage expectations** in Germany. According to researchers, this is especially true for higher expected career paths. (Leibing, et al, 2023)

### 1.3. Teachers' professional development and burnout effects

Several studies emerged focusing on teachers' development. This particular topic was reflected in analysing different aspects of education and professional development (including awareness of how to deal with bullying at school). Also, researchers explored the effects of teachers' burnout to their physical health conditions. According to the World Bank (2023), **improving teaching quality**, through more practical and focused teacher training and support, is seen as **one of the most important fronts in unlocking efficiency**.

Recent study discussed the provision of **effective professional development (PD)** for teachers in order to address the **literacy needs of English learners**. Findings revealed that PD is **less** likely to **focus** on teachers' implementation of literacy interventions for English **learners experiencing reading difficulties**, however, programmes resulted in **positive changes in teachers' knowledge and practices**. (Shelton, et al, 2023)

Some other articles also focused on education and professional developments of teachers in different aspects including **research-based teacher education** in Norway (Caspersen, et al, 2023) or **development of professional vision** and pedagogical content knowledge during **initial teacher education** in Germany (Barenthien, et al, 2023).

Additionally, first systematic review of the **association between teacher burnout and physical health** in UK was conducted by Daniel J. Madigan, Lisa E. Kim, Hanna L. Glandorf and Owen Kavanagh (2023). In the context of teacher shortages at the EU level, it could be useful to look into other countries' practices on the current teachers' working conditions including the burnout effects. Thus, research suggests that burnout may be a factor underpinning the development of physical ill-health in teachers associated with somatic complaints (e.g., headaches), illnesses (e.g., gastroenteritis), voice disorders, and biomarkers of hypothalamic-pituitary-adrenal-axis dysregulation (cortisol) and inflammation (cytokines). Researchers' attention to the topic shows necessity to invest in teachers' wellbeing and better working conditions. (Madigan et al, 2023)

### 1.4. Human capital and adult learning

Several aspects of human capital development and adult learning were researched. Even though some studies presented evidence from the non-EU countries, they may also be relevant in the EU context.

Study focusing on online college students discussed the **role of cultural and techno-capital in the academic social capital formation process**. The key findings lend support to the notion that **students with higher levels of cultural capital enact academic engagement** because they have a better understanding of the "rules of the game," but **techno-capital enables individuals to mobilize** a particular set of skills and **their socialized understanding of the online context to extract value** and realize the benefits from academic engagement. (Hamilton, et al, 2023)

Research conducted in Sweden analysed the **relationship between adult education and training (AET) and employment**. Researchers found that AET is positively related to the **probability of doing paid work** and suggested that **policies stimulating relevant AET take-up have promise to secure higher employment**. (Heller-Sahlgren, 2023) Another

study in Kosovo showed that there is a positive relationship in the **cooperation between businesses** (that is employers) and **universities** and other higher education institutions, in designing the curricula for study programs and in **increasing the employment** rates of **graduates**. (Marmullaku, Arifi, 2023)

Continuing on the topic of human capital, Lars Ludolph analyses the **long-term impact of formal host-country education for refugees on labour market outcomes** (receiving education in **Austria** instead of Bosnia). Results show that **receiving a formal degree in Austria significantly** (especially for female refugees) **reduce the probability of work below educational attainment and low-skill employment** for two decades after arrival. However, visible income differences were seen between holders of Austrian and Bosnian degrees. (Ludolph, 2023)

Important facet appears to be the **impact of co-workers and peers to the organisational learning**. Study in Peru analysed learning among coworkers function (in the egg production plant) when incentives suddenly change and when workers are not fully informed on the global shape of the production. Researchers found that workers learn from each other over the shape of the production function, however, this adjustment process is costly for the firm. (Amodio, Martinez-Carrasco, 2023) Additionally, large **peer effects in the context of job training for disadvantaged adults** in the United States have also been researched. (Baird, et al, 2023)

### 1.5. Mental health, environmental education and female teaching in STEM

Study conducted in the UK touched a specific aspect of education and its relationship with mental health. Experts found that **higher educational attainment is associated with better adult mental health**, and that education partially “rescues” genetic predictors of poor mental health. (Amin, et al, 2023) Insights by the researchers could be relevant to the EU countries in the further integration of comprehensive approach to mental health.

Research in Chile explored the **effects of environmental educational programme on children’s and parents’ knowledge**, attitudes and practices regarding the consumption and disposal of plastics. (Jaime, et al, 2023) Environmental education is also considered a crucial aspect for the ambitious EU climate goals. Results of the aforementioned study show a positive and sizeable change in children’s knowledge and practices but not on parents. Researchers highlight that interventions of this sort to be complemented with other initiatives targeting parents in the future as parents usually determine acceptable behaviour for their children. (Jaime, et al, 2023)

In terms of the gender aspects in higher education, another study found that **having a female science advisor substantially increases the likelihood that women enrol and graduate with STEM degrees**. Additionally, nonscience advisor’s gender had no impact on students’ major choice. (Canaan, Mouganie, 2023)

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All over the European Union there are hundreds of Europe Direct information centres. You can find the address of the centre nearest you at: [https://europa.eu/european-union/contact\\_en](https://europa.eu/european-union/contact_en)

### On the phone or by email

Europe Direct is a service that answers your questions about the European Union. You can contact this service:

- by freephone: 00 800 6 7 8 9 10 11 (certain operators may charge for these calls),
- at the following standard number: +32 22999696, or
- by email via: [https://europa.eu/european-union/contact\\_en](https://europa.eu/european-union/contact_en)

## FINDING INFORMATION ABOUT THE EU

### Online

Information about the European Union in all the official languages of the EU is available on the Europa website at: [https://europa.eu/european-union/index\\_en](https://europa.eu/european-union/index_en)

### EU publications

You can download or order free and priced EU publications from: <https://op.europa.eu/en/publications>. Multiple copies of free publications may be obtained by contacting Europe Direct or your local information centre (see [https://europa.eu/european-union/contact\\_en](https://europa.eu/european-union/contact_en)).

### EU law and related documents

For access to legal information from the EU, including all EU law since 1952 in all the official language versions, go to EUR-Lex at: <http://eur-lex.europa.eu>

### Open data from the EU

The EU Open Data Portal (<http://data.europa.eu/euodp/en>) provides access to datasets from the EU. Data can be downloaded and reused for free, for both commercial and non-commercial purposes.



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