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for the Social Sciences

Supplementary Material

Die Fakten dicke! Der GESIS Podcast #4

„Gedisst wie! Bildungsungleichheit in Deutschland“

June 2021

Lydia Repke

Leibniz Association

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Schneider, S. L. (2016). The Conceptualisation, Measurement, and Coding of Education in German and Cross-National Surveys. *GESIS Survey Guidelines*. Mannheim, Germany: GESIS – Leibniz Institute for the Social Sciences. doi: 10.15465/gesis-sg_en_020

Education

Education in Research

Education is often measured and controlled for in statistical analyses without prior theoretical reflection.

What could education refer to in research?

- School attendance
- Scholastic achievement
- Competencies (e.g., reading skills)
- School, vocational, and higher education qualifications
- Relative position of an individual in the distribution of education
- Fields of study
- Duration of the educational career

Education as Socialization

… *changes* people, especially through the acquisition of knowledge and the development of competencies.

Human Capital

raises the individual's productivity and refers to the acquisition of knowledge, competencies, values, and attitudes.

Becker, 1964

Incorporated Cultural Capital

comprises linguistic competence, cultural knowledge, and attitudes that the individual needs to be successful in the education and employment system.

Bourdieu & Passeron, 1970

Measurement

… of **knowledge** and **competencies** is difficult. Thus, they are often measured via years of education or educational qualifications.

Assumption. The more years people spend in the education system or the higher the final qualification is, the greater are the knowledge and competencies of the individual.

Human Capital

People invest time in education to achieve higher earnings

Common indicator: years of education

Cultural Capital

Categorical educational indicators that distinguish qualitative differences

Common indicator: educational qualifications (e.g., school types)

Educational Attainment Indicators

Years of education

- Measures how long a person has been exposed to the education system
- Correlates highly with knowledge, competencies, and attitudes

Highest educational qualification

- Reflects the duration of education/training and educational success
- Proxy for competencies

Relative or positional measures of education

- Include the social context (e.g., in the form of educational cohorts)
- Relative (not absolute) measure, theoretically more useful for measuring educational inequality

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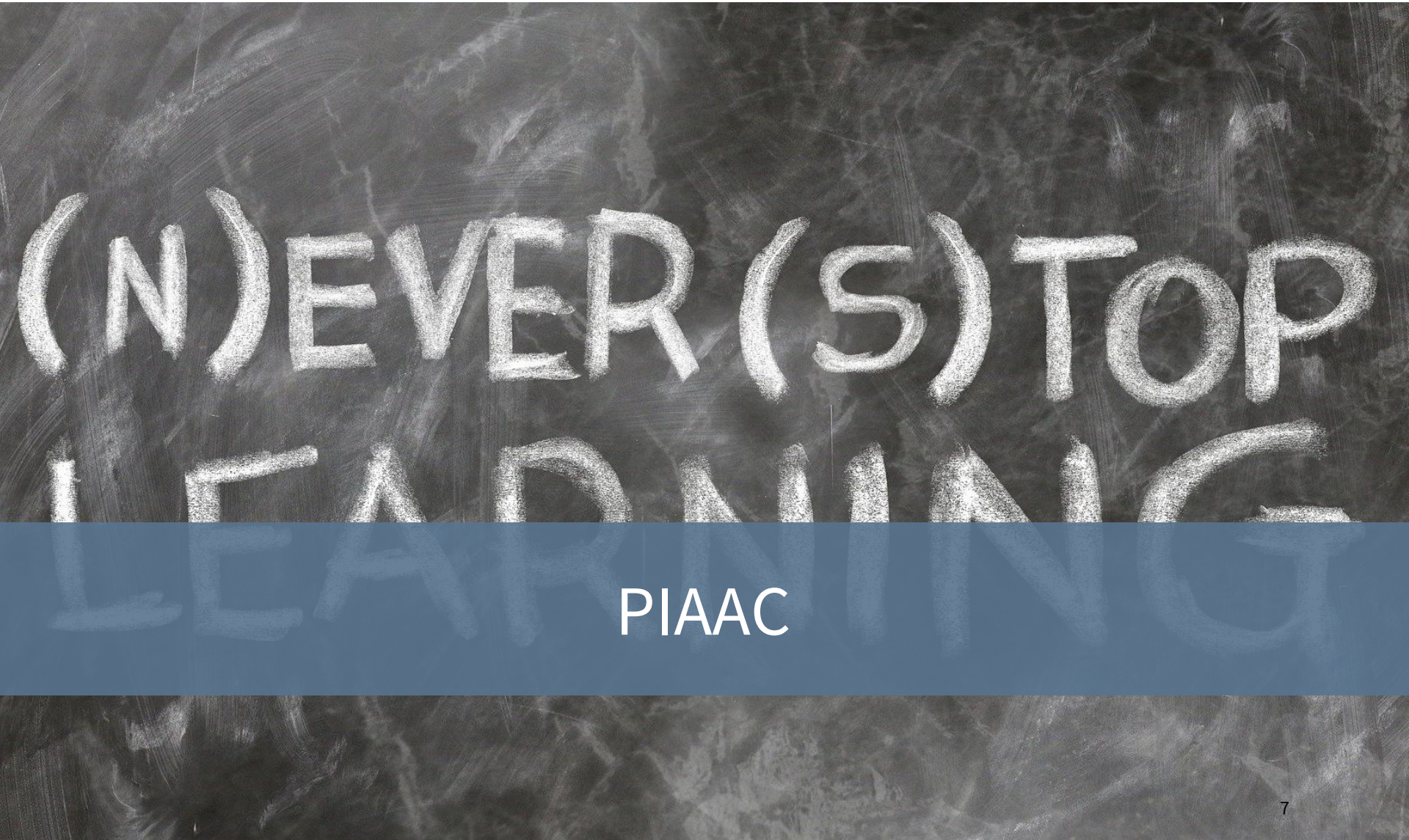


PIAAC

PIAAC

The **Programme for the International Assessment of Adult Competencies (PIAAC)** is an international large-scale study initiated by the Organization for Economic Cooperation and Development (OECD) and aims to assess the following key adult competencies:

- literacy,
- numeracy, and
- problem solving in technology-rich environments (Cycle 1)/ adaptive problem solving (Cycle 2).

These competencies are central to information processing in modern society and constitute the foundation for the development of many other, more specific competencies.

PIAAC - Survey of Adults Skills

The survey…

- is planned to be conducted every 10 years.
- has had two cycles so far.
- interviews adults aged 16 to 65 in their country of residence.
- is based on a random sample of roughly 5,000 individuals in each participating country.
- is designed to be valid cross-culturally and internationally.
- is designed as a survey that will be repeated over time.
- allows policy makers to monitor the development of key aspects of human capital in their countries.

https://www.oecd.org/skills/piaac/about/#d.en.481111

PIAAC Cycle 1

ca. 40 countries


- Round 1 (2011-2012): Australia, Austria, Belgium (Flanders), Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Korea, Netherlands, Norway, Poland, Russian Federation, Slovak Republic, Spain, Sweden, United Kingdom (England and Northern Ireland), United States
- Round 2 (2014-2015): Chile, Greece, Indonesia, Israel, Lithuania, New Zealand, Singapore, Slovenia, Turkey
- Round 3 (2017): Ecuador, Hungary, Kazakhstan, Mexico, Peru, United States

PIAAC Cycle 2

33 countries

- Round 1 (2022-2023): Australia, Austria, Belgium (Flanders), Canada, Chile, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, Netherlands, New Zealand, Norway, Poland, Portugal, Russian Federation, Singapore, Slovak Republic, Spain, Sweden, Switzerland, United Kingdom (England), United States

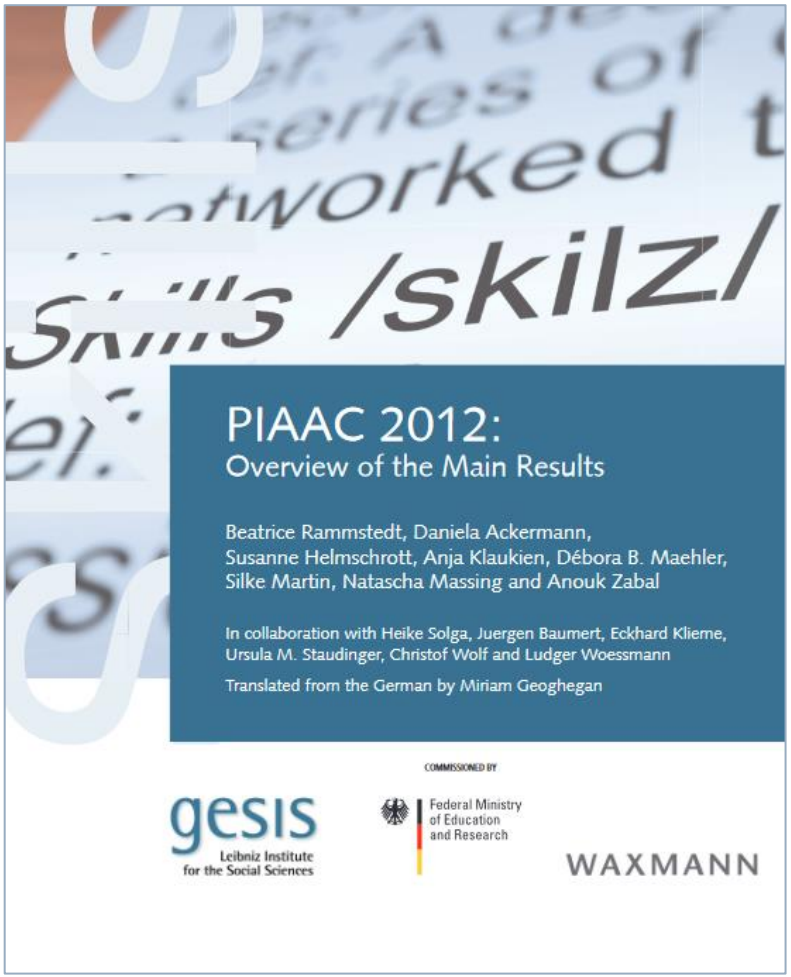
Main Elements of the Survey

Background Questionnaire	**Skills Use Module**	**Socio-emotional Skills** (Cycle 2)	**Direct Assessment**	**Employer Survey** (Cycle 2, optional)
• Demographic characteristics • Education and training • Social and linguistic background • Employment status and income • Social outcomes • Quality of the work environment	• Cognitive skills • Interaction and social skills • Physical skills • Learning skills	• Individual attributes, behaviors, and beliefs (such as conscientiousness, open-mindedness, self-efficacy, relationships with others)	• Literacy • Numeracy • Problem solving in technological rich environments (only Cycle 1) • Adaptive problem solving	• Skills needs of enterprises, strategies to address skill gaps, business factors affecting demand for skills

Note. Blue elements are new in Cycle 2.

https://www.oecd.org/skills/piaac/piaacdesign/

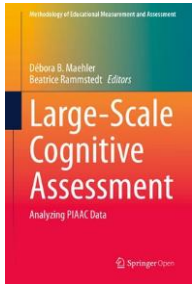
PIAAC Cycle 1 - Main Results



An overview of the main **results** of Cycle 1 Round 1 can be found in the PIAAC results brochure.

You can read more results from PIAAC Cycle 1, working papers, thematic reports, and other publications here.

Data Access



To get an **overview** of all the available PIACC data, check out this publication.

To access and play with the **data**, go here.

The **Research Data Center PIAAC** provides information on available PIAAC datasets on its website. To download PIAAC data, registration (for public use files) or signing a data distribution contract (for scientific use files) is required. Some documents, such as variable reports and questionnaires, are available without registration. Furthermore, PIAAC data users have the possibility to work with more sensitive PIAAC data (e.g., regional data) at the GESIS Secure Data Center.

Questions about the German PIAAC data? Ask here: fdz-piaac@gesis.org.

Online Tutorial – Data Analysis

A **practical guide** on how to analyze the PIAAC data in Stata can be found here.

The material includes videos, slides, data, and syntax.

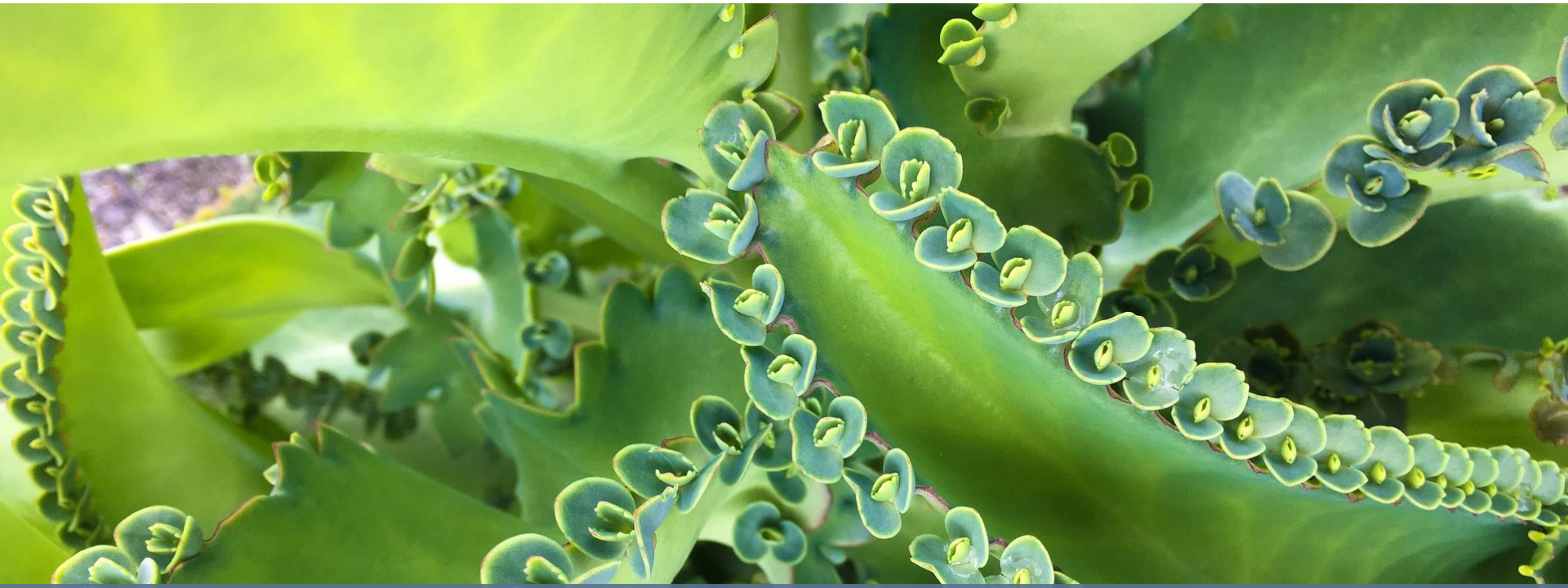
Video 1 - Introduction to PIAAC Data

Video 2 - Data Access and First Steps in Stata

Video 3 - Stata-Ado *piaactools*

Video 4 - Stata-Ado *repest macro*


```
* ------------------------------------ *
*            Video Tutorial:           *
*    Analyzing PIAAC data with Stata   *
* ------------------------------------ *

* define your own global paths

global orig "Stata\1_orig\"
global data "Stata\2_data\"
global log  "Stata\3_log\"
global out  "Stata\5_out\"

* use log file

log using "${log}FirstStepsStata.log", replace

* ------------------------------------ *
* ---------- ( Video 2: ) ---------- *
* ( Data Access & 1st Steps in Stata ) *
* ------------------------------------ *

* load data with all countries

use "${orig}PIAAC_All_PUFs.dta"

* tabulate countries in the data set

tab cntryid

* --> some countries do not have a label yet
```



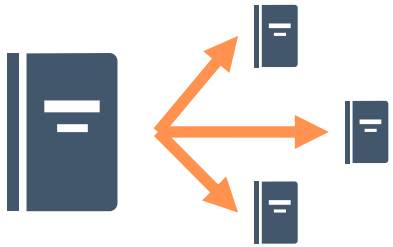
Replication and Meta-Analysis

Replication

Replication

refers to researchers conducting a repeated study of a project that typically has been published in a peer-reviewed journal or book.

(Given, 2008)



Purpose

is to determine whether the basic findings of the original study hold for other participants and circumstances.

(Makel et al., 2012)

Meta-Analysis

Meta-Analysis

is a statistical tool for estimating the mean and the variance of an underlying population effect based on a collection of studies addressing seemingly the same research question.

(Field & Gillett, 2010)

Purpose

is to objectify literature reviews using statistics to discover how big an effect is and what moderates it.

(Field, 1999)

Steps of a Meta-Analysis

According to Field & Gillett (2010), there are six basic steps of a **meta-analysis**:

(1) Do a literature search (based on your research question; e.g., on ISI Web of Knowledge, PubMed, Google Scholar)

(2) Decide on "objective" inclusion criteria for studies (formulate criteria as precise as possible)

(3) Calculate the effect sizes (need to represent the same effect and are all expressed in the same way)

(4) Do the basic meta-analysis (estimate is a weighted mean of the effect sizes)

(5) Do some more advanced analysis (e.g., publication bias analysis, moderator analysis)

(6) Write it up (e.g., follow guidelines of Rosenthal, 1995)

Related Studies, Links, and Media

PISA

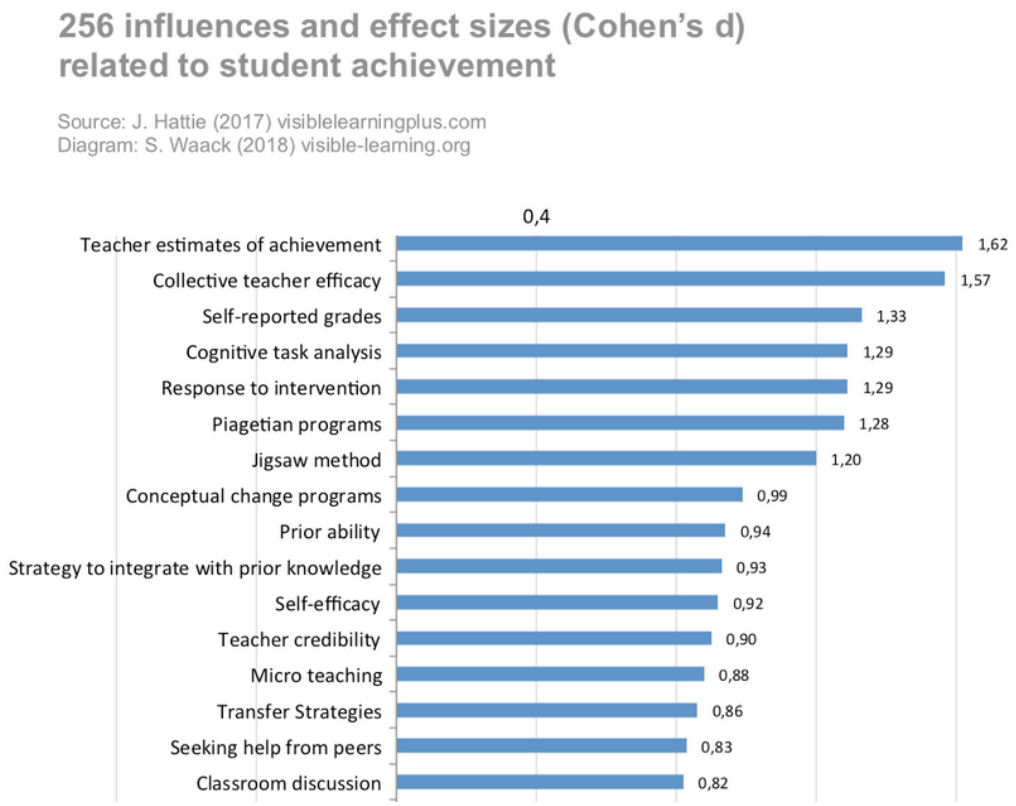
The **Programme for the International Student Assessment (PISA)** is an international large-scale study initiated by the Organization for Economic Cooperation and Development (OECD) and aims to assess 15-year-olds' ability to use their:

- reading,
- mathematics, and
- science knowledge and skills to meet real-life challenges.

The study was first performed in 2000 and then repeated every three years. It allows policy makers to monitor and improve the education policies and outcomes in their country.

https://www.oecd.org/pisa/

The Hattie Study



Johan Hattie identified 256 influences on student achievement based on a meta-analysis of 1,200 meta-analyses. The average effect size of all interventions was 0.4.

https://visible-learning.org/backup-hattie-ranking-256-effects-2017/

Dräger & Müller (2020)

Wealth stratification in the early school career in Germany

Parents' social background predicts their children's educational achievement, thus reproducing social inequality between generations. This finding is internationally well-known and a constant cause for public and academic discussion. But which aspects of parental social background are relevant in this context? So far, research has identified parents' education, occupation and income …

ELSEVIER

Research in Social Stratification and Mobility

Volume 67, June 2020, 100483

Wealth stratification in the early school career in Germany

Jascha Dräger, Nora Müller

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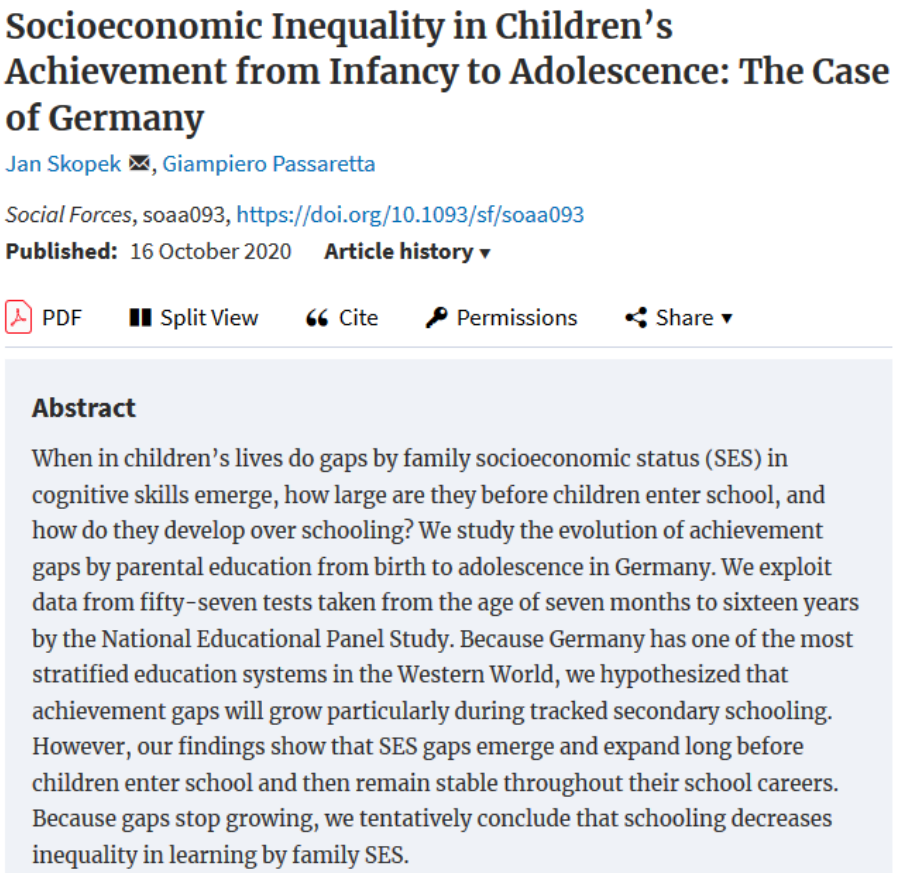
Blog article
https://blog.gesis.org/wealth-stratification-in-the-early-school-career-in-germany/

Skopek & Passaretta (2020)



Socioeconomic Inequality in Children's Achievement from Infancy to Adolescence: The Case of Germany

Jan Skopek ✉, Giampiero Passaretta

Social Forces, soaa093, https://doi.org/10.1093/sf/soaa093
Published: 16 October 2020 **Article history** ▾

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Abstract

When in children's lives do gaps by family socioeconomic status (SES) in cognitive skills emerge, how large are they before children enter school, and how do they develop over schooling? We study the evolution of achievement gaps by parental education from birth to adolescence in Germany. We exploit data from fifty-seven tests taken from the age of seven months to sixteen years by the National Educational Panel Study. Because Germany has one of the most stratified education systems in the Western World, we hypothesized that achievement gaps will grow particularly during tracked secondary schooling. However, our findings show that SES gaps emerge and expand long before children enter school and then remain stable throughout their school careers. Because gaps stop growing, we tentatively conclude that schooling decreases inequality in learning by family SES.

https://academic.oup.com/sf/advance-article/doi/10.1093/sf/soaa093/5924408

Mannheim Corona Study

The **Mannheim Corona Study** (MCS) is a project of the German Internet Panel that examines the social changes caused by the Corona pandemic in Germany. The MCS is divided into three stages:

https://www.uni-mannheim.de/en/gip/corona-study/

Hurrelmann & Dohmen (2020)

Expertenstimme

Das Deutsche Schulbarometer

Corona-Krise verstärkt Bildungsungleichheit

Die Schulschließungen infolge der Corona-Krise führt deutlich vor Augen, wie stark der Bildungserfolg von der sozialen Herkunft abhängt. Kinder und Jugendliche, die von ihren Eltern beim Fernunterricht unterstützt werden, haben erheblich bessere Chancen, unbeschadet aus dieser Krise hervorzugehen, als Schülerinnen und Schüler, deren Eltern dies nicht können. Welche Auswirkungen diese Situation hat und wie Schulen und Politik der sozialen Spaltung gegensteuern sollten, erklären die Bildungsforscher Klaus Hurrelmann und Dieter Dohmen in ihrem Gastbeitrag für das *Schulportal*.

15. April 2020

Klaus Hurrelmann und Dieter Dohmen

https://deutsches-schulportal.de/expertenstimmen/das-deutsche-schulbarometer-hurrelmann-dohmen-corona-krise-verstaerkt-bildungsungleichheit/

Leibniz Education Research Network (LERN)

The LERN network is a research alliance of 25 institutions from the Leibniz Association.

https://www.leibniz-bildung.de/en/

Leibniz-Institut für Wissensmedien (IWM)

The IWM was founded in 2001. The research done at the IWM focuses on knowledge processes and how they are influenced by digital media. The main application fields are: teaching and learning with digital media in schools and universities, knowledge-related Internet usage, knowledge work with digital media, and knowledge transfer in museums and exhibitions.

https://www.iwm-tuebingen.de/www/en/index.html

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Invited Experts

Assessment of Competencies

beatrice.rammstedt@gesis.org

Prof. Dr. Beatrice Rammstedt

is the Vice-President of GESIS – Leibniz Institute for the Social Sciences (GESIS) and the scientific director of the department Survey Design and Methodology. She is specialized in psychological assessment, survey design, and methodology.

Click here for a list of interesting publications on PIAAC by Beatrice Rammstedt and her colleagues.

Education and Wealth

nora.mueller@gesis.org

Dr. Nora Müller

is one of the PIs of the research project "The Effect of Parental Wealth on Educational Decisions." Her research focuses on wealth and educational inequality, subjective well-being, family processes, and labor market research.

Dräger, J., & Müller, N. (2020). Wealth stratification in the early school career in Germany. *Research in Social Stratification and Mobility*, 67, 100483. https://doi.org/10.1016/j.rssm.2020.100483

Knowledge Construction

u.cress@iwm-tuebingen.de

Prof. Dr. Ulrike Cress

is the director of the Leibniz-Institut für Wissensmedien (IWM). She leads the Knowledge Construction lab and is part of the speaker group of the Leibniz Research Network Educational Potentials (LERN).

She is an expert in educational and media psychology.

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References and Sources

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Enjoy (social) data(ing)!

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https://podcast.gesis.org

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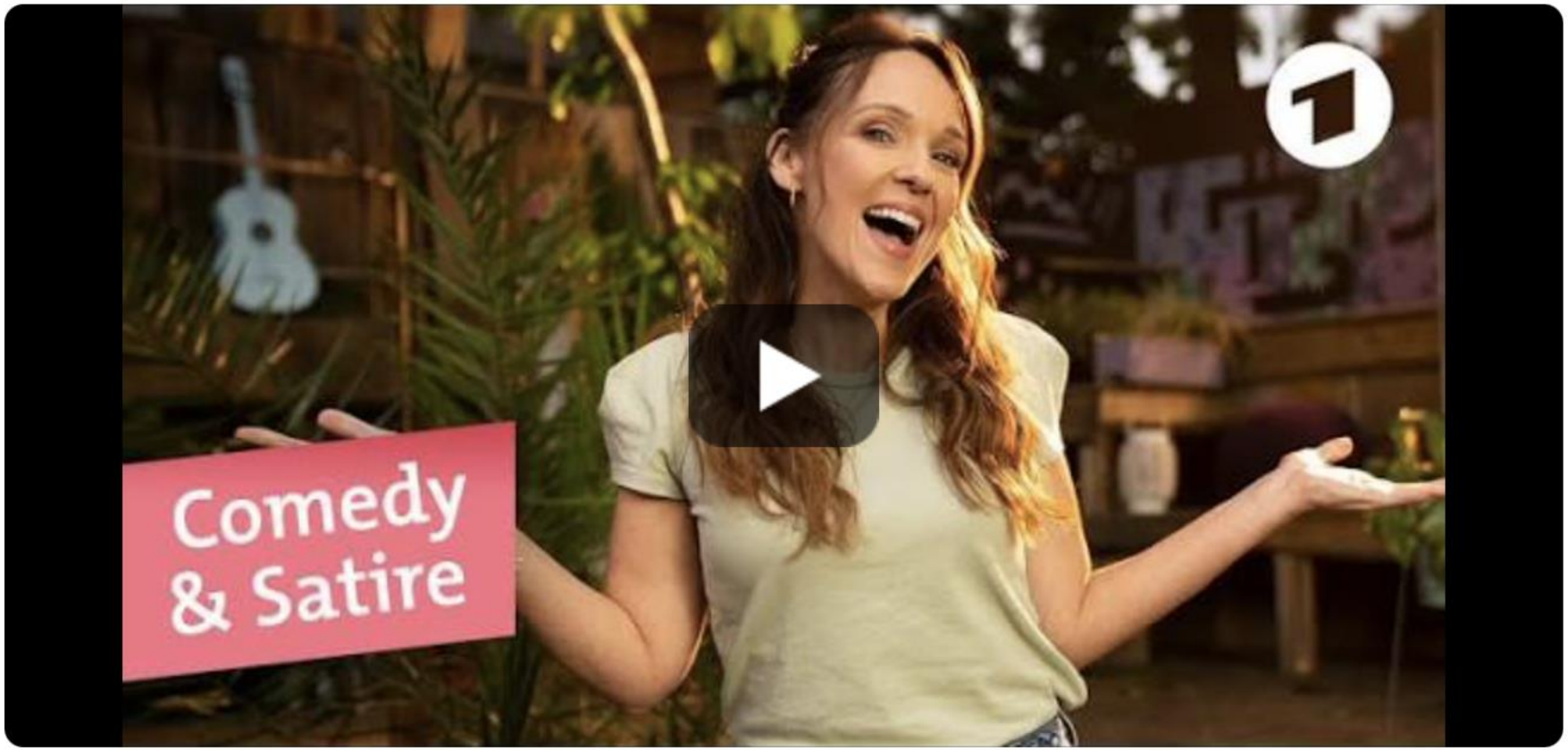
Der Sommer wird gut [The summer will be good]



Carolin Kebekus feat. Karl Lauterbach – La Vida sin Corona ...

https://www.youtube.com/watch?v=gP-KmiLC6NY