

# New Research Projects based on Wave 5 AEA RCT Registry 0008561

## **Pre-Analysis Plan**

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# Background

This pre-analysis plan builds on our ongoing research program, in particular:

- ▶ Our previous AEA RCT Registry entry (0008561), registered by Silke Anger, Bernhard Christoph, Agata Gałkiewicz, Shushanik Margaryan, Frauke Peter, Malte Sandner, and Thomas Siedler.
- ▶ A related study by the same research team *"A Library in the Palm of Your Hand? A Randomized Field Experiment with Low-Income Children."* (IZA Discussion Paper No. 17322, March 2025).

# Background

- ▶ This research was reviewed and approved by the Institutional Review Board of the University of Bamberg.
- ▶ Our questionnaires were reviewed and approved by the data protection officer at the Institute for Employment Research (IAB) in Nürnberg, Germany.

# Background

This pre-analysis plan extends that work by focusing on

1. **Children's mental health**
2. **Spillover effects in the family**
3. **Disengagement from school**
4. **Feedback from teachers**
5. **Returns to (reading) motivation.**

# 1. Data and Sample

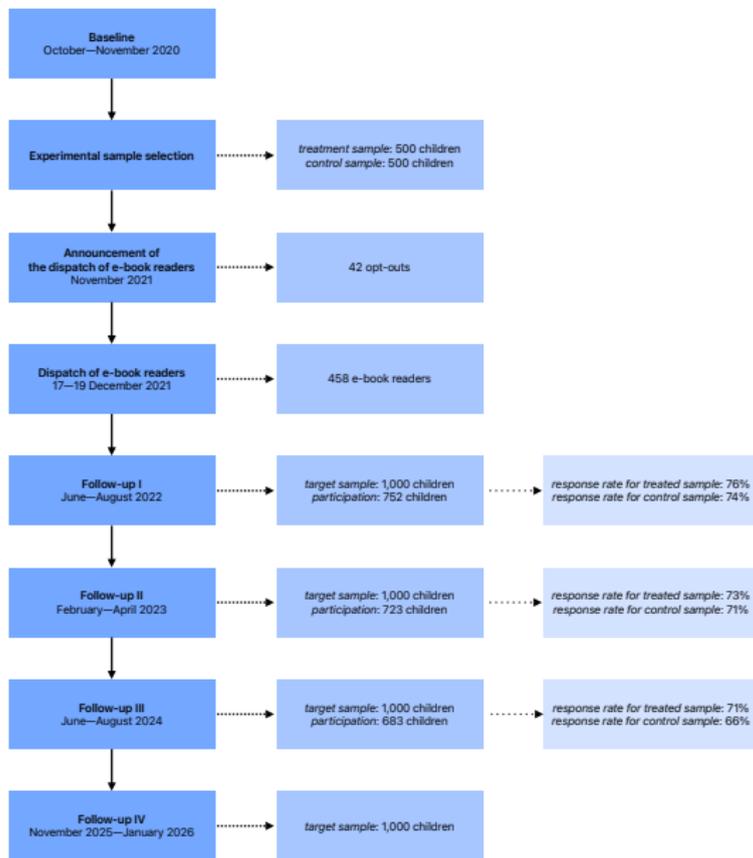
# Data Collection and Sample

- ▶ 1,000 **low-income households** sampled from Social Security Records (German Federal Employment Agency, IAB).
- ▶ Welfare-recipient households are oversampled.
- ▶ Stratified randomization of 1,000 households.
  - ▶ Target children: 11–12 (grades 5–6) in Germany.
  - ▶ Treatment group: 500.
  - ▶ Control group: 500.
- ▶ Households spread across schools and federal states. [See map in the Appendix](#)
  - ▶ Treatment delivered outside of schools.
  - ▶ Teachers were not involved in the experiment.
  - ▶ Spillover effects are unlikely.

# Surveys

- ▶ Five survey waves:
  - ▶ Wave I (baseline): November 2020
  - ▶ Wave II (6 months): June–August 2022
  - ▶ Wave III (12 months): February–April 2023
  - ▶ Wave IV (30 months): June–August 2024
  - ▶ **Wave V (46 months): November 2025–January 2026**
- ▶ Online survey ( $\approx$  20 minutes), capturing:
  - ▶ Individual socio-demographics,
  - ▶ Reading behavior, school performance, leisure activities,
  - ▶ Parents: household characteristics and child-related questions.
- ▶ With consent, survey data can be linked to administrative labor market records from the IAB once children enter the labor market (consent requested in Wave V).

# Timeline I



# Timeline: New Research Projects



# The Child-Literacy Intervention

- ▶ E-book reader devices with subscription to a large digital library (about 1,000 books) for one year
  - allows children to select books that align with their interests and reading abilities
  - ▶ children could keep the devices after the subscription expired
- ▶ Child autonomy
  - no reliance on parents or teachers
- ▶ Pre-activated password-protected child mode
  - reducing barriers and ensuring age-appropriate content
- ▶ Book recommendations via postcards (joint with Stiftung Lesen)
  - guidance similar to what children from educated backgrounds receive.
  - 6 postcards mailed  $\approx$  every 3 weeks with book recommendations [See timeline](#)
  - 3 postcards included links to short videos produced with *Stiftung Lesen* [See example](#)
- ▶ Geographically representative and spread-out sample
  - mitigates concerns about spillover effects

# Background

- ▶ Balance of covariates at baseline between treatment and comparison group.
- ▶ No selected attrition in follow-ups I–III.
- ▶ See tables on balance and attrition on the following pages.

## Balance of the Covariates in the Baseline (Nov 2020)

	Control (1)	Treatment (2)	Difference (3)	p-value (4)
Female	0.52	0.51	0.01	(0.85)
School year	4.43	4.43	-0.00	(0.98)
Year of birth	2010.07	2010.13	-0.05	(0.24)
Month of birth	6.53	6.38	0.15	(0.50)
Reading score	-0.00	0.00	-0.01	(0.92)
German grade	2.39	2.34	0.05	(0.33)
Math grade	2.33	2.28	0.05	(0.38)
Parents' school leaving qualification	0.78	0.79	-0.01	(0.69)
Parents born in Germany	0.79	0.79	0.00	(0.88)
Very low socioeconomic status	0.53	0.54	-0.00	(0.95)
Number of observations	500	500		

*Notes:* German and math are the respective school grades, measured on a scale of 1–5, where 1 is the best possible grade. Parental school leaving qualification is a binary variable taking on the value 1 if the parent has at least a middle school (Realschule) qualification, and zero otherwise. Very low socioeconomic status refers to students who come from households receiving welfare.

# No Differential Attrition between Control and Treatment group

	Treatment (1)	Control (2)	Difference (3)	p-value (4)
<i>Response rate:</i>				
Follow-up I	0.76	0.74	-0.02	(0.42)
Follow-up II	0.73	0.71	-0.02	(0.44)
Follow-up III (endline)	0.71	0.66	-0.05	(0.07)
Responded all surveys	0.61	0.59	-0.02	(0.45)

*Notes:* Response rates are calculated based on the original sample of 1,000 participants. The last row of the table presents the share of children who participated in all three follow-up surveys. Follow-up I: 6 months after the start of RCT. Follow-up II: 12 months after the start of RCT. Follow-up III: 30 months after the start of RCT.

Selective attrition?

## 2. Reading & Child Mental Health

# Background

*“Reading strengthens the soul.” (Voltaire)*

*“When I’m feeling unwell, I don’t go to the pharmacy, but to my bookseller.” (Philippe Dijan)<sup>1</sup>*

*“... literature has the potential to improve a person’s sense of well-being.” (Poerio and Totterdell, 2020)*

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<sup>1</sup>See Hoffmann (2017).

# Motivation: Reading & Child Mental Health

## Reading:

- ▶ In 2022, 37% of U.S. fourth graders scored below the NAEP's (National Assessment of Educational Progress) basic reading level.
- ▶ In Germany, reading skills among 15-year-olds were the lowest ever measured by the Programme for International Student Assessment (*PISA 2022 Results (Volume I)*, 2023).
- ▶ Home literacy environment is crucial for young children.
  - ▶ By age 18, children in the U.S. spend only 12% of their waking time in school (Shulman et al., 2024).

## Child Mental Health:

- ▶ Around 13% of children aged 3–17 are diagnosed with a mental or behavioral health condition (Currie, 2025).
- ▶ Roughly 50% of adult mental health disorders begin in childhood (Kessler et al., 2005; Currie, 2025) and there is an intergenerational persistence in mental health (Bütikofer et al., 2024).

# Research Questions

- ▶ Does the provision of e-book readers—including a large library of age-appropriate books—improve children's well-being?
- ▶ Does providing e-book readers to school-age children affect their mental health?
- ▶ Is there a causal relationship between reading and emotional and behavioral problems?
- ▶ Do the effects vary in the short, medium, and longer term (i.e., 6, 12, 30, and 46 months after the start of the literacy intervention)?

# Conceptional and Theoretical Framework

## Why literacy matters: A short interdisciplinary summary

- ▶ Reading fiction can simulate real-life situations: readers can live through the protagonists' experiences (Kozak and Recchia, 2019; Batini et al., 2020).
  - ▶ "Transportation": the reader becomes immersed in the world created by the book (Gerrig, 1993).
  - ▶ Reading helps individuals understand their own and others' emotions (Koopman and Hakemulder, 2015).
  - ▶ Reading is relaxing and may benefit mental health.

*"Reading allows us to experience, know and recognize emotions, to understand and grasp our own and others' emotional states, ... improving our emotional and behavioral skills."* (Batini et al., 2020, p. 14)

# Conceptional and Theoretical Framework

- ▶ Reading fosters social understanding (i.e, the ability to understand and sympathize with other's emotions, motivations, feelings, and plans) (Kozak and Recchia, 2019).
- ▶ Reading fiction improves mental capacity and social cognition (Mar, 2018; Koopman and Hakemulder, 2015).
- ▶ Children who read more tend to be more socially competent and may experience fewer problems in interactions with others (Anger et al., 2025; Undheim et al., 2011).
- ▶ Literacy has stress-reducing effects comparable to sports or meditation (Rizzolo et al., 2009).

**Reading may positively affect readers' well-being and mental health.**

# Child Mental Health

- ▶ Mental health disorders in children and adolescents are linked to numerous adverse outcomes later in life (Currie and Stabile, 2006; Ding et al., 2009; Currie et al., 2010; Fletcher, 2010, 2014; Goodman et al., 2011; Dalsgaard et al., 2014; Anderson et al., 2015; Cornaglia et al., 2015).
- ▶ We aim at contributing to a growing number of RCTs estimating causal effects on children's mental health.<sup>2</sup> For example:
  - ▶ Perry Preschool Program (Heckman et al., 2013).
  - ▶ Moving to Opportunity Housing Mobility Experiment (Katz et al., 2001; Kling et al., 2007).
  - ▶ Fast Track Prevention Trial (Bierman, 2002).
  - ▶ Social-Emotional and Literacy Intervention (Jones et al., 2011).
  - ▶ Prenatal and Infancy Home Visiting Program (Conti et al., 2024).

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<sup>2</sup>For recent RCTs on child mental health in low- and middle-income countries, see, for example, Shah et al. (2024) and references therein.

# School-age Children, Reading, and Emotional-Behavioral Problems

- ▶ Batini et al. (2020): “The Association Between Reading and Emotional Development: A Systematic Review”
  - ▶ Provide a summary on studies examining the link between reading and emotional-behavioral problems.
  - ▶ The authors identified 24 articles on reading among school-age children.
  - ▶ The majority of studies report relationships rather than causal effects.
- ▶ Children with lower literacy skills are more likely to have internalized mental health conditions, such as anxiety, depression, feeling angry, sad, and lonely (Undheim et al., 2011; Morgan et al., 2012; Shulman et al., 2024).

# RCTs on Reading and Mental Health with School-Age Children

Very few studies examined the causal effects of reading interventions on child socio-emotional development and mental health.

- ▶ Jones et al. (2011): Two-year impacts of a randomized school-based social-emotional and literacy intervention.
  - ▶ The authors study children's social-cognitive, social-emotional, behavioral, and academic outcomes.
  - ▶ Randomization at the school level ( $df=8$ ), 3rd graders.
  - ▶ Nearly 1,200 children in 18 elementary schools in NYC.
  - ▶ Two year long social, emotional and literacy intervention.
  - ▶ Key findings: Treated children show a stronger decline in depressive and ADHD symptoms compared to children in the control group.

**We provide long-term causal evidence on the impact of reading activities on children's emotional and behavioral outcomes.**

# Minimum Detectable Effects after Outcome Definition

Source: SOEP Youth 2000-2022 (97% age 17)

- ▶ Strength and Difficulties Questionnaire (SDQ): Total Difficulties Score, 1-35
- ▶ Mental health (depression) index: composite index by summing four items measuring low interest, bad mood, nervousness, and loss of control
- ▶ Life satisfaction: single item, 0-10

MDE for a two-sample means test, assuming a two-arm randomized trial with 350 participants per group ( $N = 700$  total) and 80% power.

# Minimum Detectable Effects after Outcome Definition

Table 1: Minimum Detectable Effects (MDE)<sup>a</sup>

Variable	Mean	SD	MDE
SDQ	10.816	4.924	1.044
Mental health index	5.776	2.16	0.459
Life satisfaction	7.693	1.666	0.353

<sup>a</sup> Source: SOEP Youth 2000-2020. N=700, with 350 observations in each group. The MDE is calculated as:  $(1.96 + 0.84) * se(\hat{\beta})$

# Main outcomes (self-reported by children):

- ▶ Development of emotional-behavioral problems over time. Measured with the Strength and Difficulty Questionnaire (SDQ) (Goodman, 1997; Woerner et al., 2002).<sup>3</sup> Question and items SDQ
  - ▶ Externalising symptoms score
  - ▶ Internalising symptoms score
- ▶ Mindfulness & attention (Brown and Ryan, 2003). Question and items
- ▶ Anxiety & depression (Kroenke et al., 2003; Arroll et al., 2010; Löwe et al., 2010). Question and items
- ▶ Life satisfaction (Schimmack et al., 2010). Question and items

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<sup>3</sup>In our previous work (Anger et al., 2025), we examined the impact of the literacy intervention on the SDQ in the short- and medium term. Here, we aim at shedding additional light on the longer-term effects and its development over time. In waves 3 and 4, we also asked the parents about their child's SDQ. See the overview table on the next slide.

## Secondary outcomes:

- ▶ Bullying Question and items
  - ▶ Shortened version of the Olweus Bully/Victim Questionnaire (OBVQ) (Olweus, 2012; Bevans et al., 2013).
- ▶ Parental stress Question and items
  - ▶ Shortened version of the parental stress index (Abidin, 1983, 1992; Hofecker Fallahpour et al., 2009).

# Measurement of Outcome Variables

Survey (reported by)	Wave 1 (baseline)	Wave 2	Wave 3	Wave 4	Wave 5
<b>Child</b>			SDQ <sup>a</sup>	SDQ	SDQ mindfulness & attention anxiety & depression bullying
		life satisfaction	life satisfaction	life satisfaction	life satisfaction
<b>Parent</b>			child's SDQ	child's SDQ	
					parental stress index

<sup>a</sup> SDQ: Strength and Difficulty Questionnaire.

## Estimation: Intention-to-treat (ITT)<sup>4</sup>

$$Y_i = \alpha + \beta \text{treat}_i + \gamma' \text{strata}_i + \mu' \mathbf{X}_i + \epsilon_i$$

- where  $Y_i$  is one of our main and secondary outcomes on mental health
- $\text{treat} = 1$  if child  $i$  is initially assigned to the treatment group, zero otherwise
- $\text{strata}_i$ : strata fixed effects (welfare receipt, sex, school grade, migration background, median split of baseline reading comprehension)
- $\mathbf{X}_i$  year of month and month of birth fixed effects.

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<sup>4</sup>We will also report the treatment on the treated (TOT), using the initial randomization assignment as an instrument for take-up ( $\text{treat}$ ), proxied with self-reported use ( $T$ ).

# Mediation, Robustness & Sensitivity Analyses

- ▶ We aim at mediation analysis following Heckman et al. (2013).
- ▶ We will examine attrition and the risk of selected attrition.
- ▶ Robustness checks using SDQ measures reported by both children and parents.
- ▶ Treatment-on-the treated (TOT) estimates.
- ▶ Re-estimation with additional pre-determined control variables.
- ▶ Alternative specifications, including probit and ordered probit models.
- ▶ Adjustments for multiple hypotheses testing.

# 3. Spillover Effects in the Family

# Research Questions

- ▶ Does the provision of e-book readers outside of schools result in positive spillover effects in the family?
- ▶ Does providing e-book readers to school-age children positively impact on the reading behavior of the younger sibling?
- ▶ Do parents adjust their (reading) behavior?

# Main outcomes (reported by parent):

## ▶ Reading behavior of younger sibling

- ▶ Amount of time spend reading (alone) Question and items Question and items
- ▶ Amount of time spend reading (with a parent) Question and items
- ▶ Reading volume Question and items
- ▶ Reading joy Question and items
- ▶ Reading skills Question and items

## ▶ Reading behavior of parent

- ▶ Amount of time spend reading Question and items Question and items
- ▶ Reading volume Question and items
- ▶ Reading joy Question and items

## Secondary outcomes (reported by parent):

- ▶ Participation in joint parent–child public library use (borrowing or on-site reading) in the past three months. [Question and items](#)
- ▶ Parent–child discussion of the child’s reading activities. [Question and items](#)

# Mediation, Robustness & Sensitivity Analyses

- ▶ We will examine attrition and the risk of selected attrition.
- ▶ Treatment-on-the treated (TOT) estimates.
- ▶ Re-estimation with additional pre-determined control variables.
- ▶ Alternative specifications and adjustments for multiple hypotheses testing.
- ▶ We will also study the strength of correlations in reading behavior between the older (treated and non-treated) sibling and the younger sibling.
- ▶ We will examine potential differences in spillovers by gender of the siblings.

## Estimation: Intention-to-treat (ITT)<sup>5</sup>

$$Y_i = \alpha + \beta \text{treat}_i + \gamma' \text{strata}_i + \mu' \mathbf{X}_i + \epsilon_i$$

- where  $Y_i$  is one of our main and secondary outcomes on younger sibling and parent, respectively.
- $\text{treat} = 1$  if (older) child  $i$  is initially assigned to the treatment group, zero otherwise
- $\text{strata}_i$ : strata fixed effects (welfare receipt, sex, school grade, migration background, median split of baseline reading comprehension)
- $\mathbf{X}_i$  year of month and month of birth fixed effects.

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<sup>5</sup>We will also report the treatment on the treated (TOT), using the initial randomization assignment as an instrument for take-up ( $\text{treat}$ ), proxied with self-reported use ( $T$ ).

# 4. Disengagement from School

# Background

- ▶ Early reading gaps amplify over time.
- ▶ Children who struggle read less → fall further behind → higher risk of disengagement (Stanovich, 1986).
- ▶ Low literacy is a key predictor of school disengagement and dropout.

# Background

- ▶ The high rate of student disengagement in school (dropout) among low-income families is primarily driven by factors beyond credit constraints (Stinebrickner and Stinebrickner, 2008).
- ▶ Strong **correlational evidence** linking reading skills and school engagement.
- ▶ **Causal mechanisms remain underexplored.**
- ▶ Studies estimating causal effects on dropout decisions include, for example, Oreopoulos (2007); Garces et al. (2002); Angrist et al. (2006).
- ▶ None of these studies investigates the causal effects of reading comprehension and reading behavior on school engagement, absenteeism, and dropout.

# Questions

- ▶ Does improving literacy directly reduce disengagement?
- ▶ What are the causal effects of reading skills on disengagement in school?
- ▶ What types of disengagement in school are mainly affected?

# Main outcomes (self-reported by children):

- ▶ Absenteeism Question and items
- ▶ Disengagement. Question and items
  - ▶ Adapted version of the social engagement questionnaire (Fredricks et al., 2004).

# 5. Feedback from Teachers

# Background

- ▶ Matthew effect refers to the phenomenon where early advantages in learning—especially in reading—tend to accumulate over time, while early disadvantages can compound and become harder to overcome
- ▶ “For to everyone who has, more will be given. . . but from the one who has not, even what he has will be taken away.” (Matthew 25:29).

# Research Questions

- ▶ Does a Matthew effect among teachers in schools exist?
- ▶ If yes, how large is it?
- ▶ Does reading for pleasure reinforce positive feedback from teachers?

# Main outcomes (self-reported by children):

- ▶ Teacher's feedback Question and items
  - ▶ Own question devised based on section 'Clarify' of the 7Cs Framework Classroom Management of Effective Teaching and (Hattie and Timperley, 2007).

# 6. Returns to (Reading) Motivation

# Background

- ▶ How important is children's motivation for success later in life?
- ▶ We will use randomization as an instrument for motivation (intrinsic reading motivation).
- ▶ As such, we treat intrinsic reading motivation as an endogenous variable.

# Research Questions

- ▶ How important is (reading) motivation for children's success later in life?
- ▶ Are there positive returns to intrinsic motivation and if yes, how large are they?

# Main Outcome Measures

- ▶ Labour market outcomes from the IAB administrative records.
  - ▶ Earnings, unemployment, and employment.

# Secondary Outcome Measures

- ▶ Occupational choice (if we have enough variation and a large enough sample size).

# Intrinsic Reading Motivation (self-reported by children):

- ▶ Intrinsic reading motivation Question and items
  - ▶ Adapted version of the Intrinsic Motivation Inventory (IMI) (Ryan, 1982; Ryan and Deci, 2020).

# Estimation: OLS and Instrumental Variables (IV)

- ▶ We will estimate OLS and IV regressions.
- ▶ Intrinsic reading motivation is the key endogenous variable.
- ▶ Randomized treatment (receipt of e-book reader) will be used as an instrumental variable.
- ▶ Document first-stage relevance checks.
- ▶ Tests for weak instruments.
- ▶ Report reduced form results.

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# 9. Appendix of the Pre-Analysis Plan Wave 5 & AEA RCT Registry 0008561

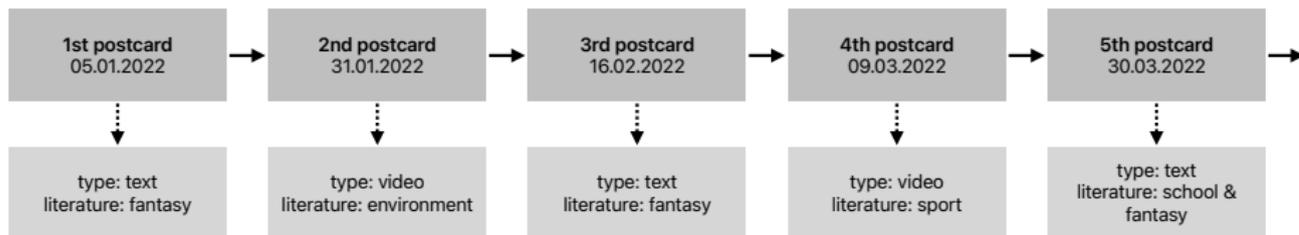
# Geographic Spread of the Sample

[back](#)



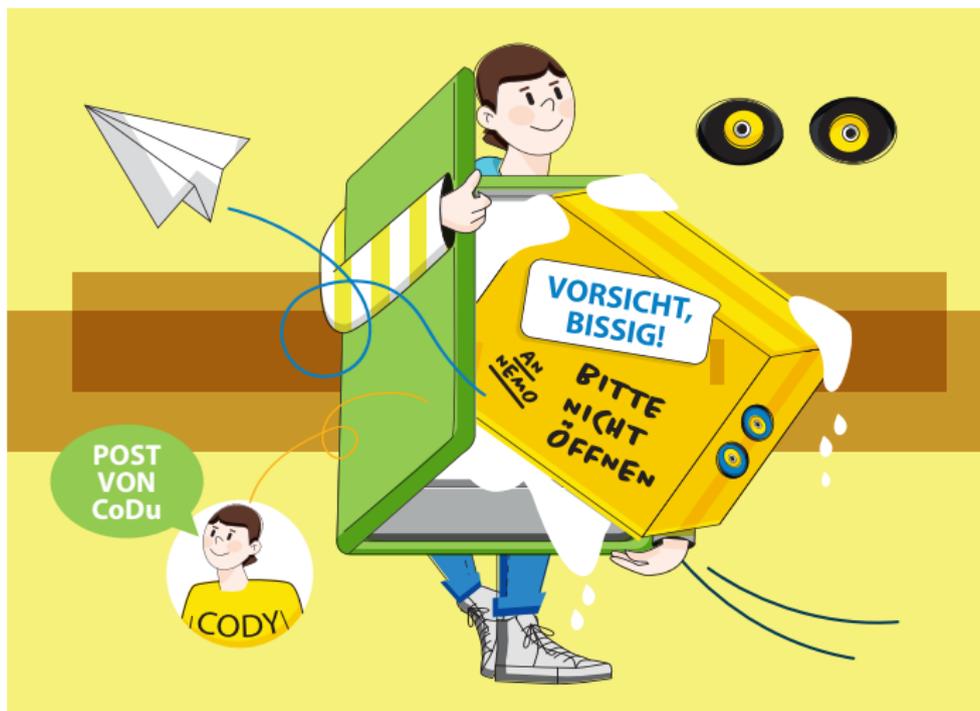
# Timeline of Postcards

[back](#)



# An Example of a Postcard

back



# Selected attrition?

[back](#)

	(1)	(2)	(3)
Treat	0.023 (0.409)	0.022 (0.412)	0.022 (0.429)
Treat x Baseline Ebooks			0.046 (0.113)
Treat x Baseline Books			-0.049 (0.107)
Treat x Baseline Reading Comprehension			-0.003 (0.912)
Treat x Baseline Math Grade			0.002 (0.960)
Treat x Baseline German Grade			0.002 (0.962)
Baseline Ebooks		-0.002 (0.907)	0.018 (0.331)
Baseline Books		0.005 (0.750)	-0.019 (0.358)
Baseline Reading Comprehension		-0.013 (0.589)	-0.012 (0.671)
Baseline Math Grade		0.020 (0.252)	0.019 (0.441)
Baseline German Grade		0.033 (0.056)	0.034 (0.181)

Notes: Outcome: Participating in survey 3 (Feb.-April 2023). Number of observations is 1,000.

# 9. Appendix of the Pre-Analysis Plan Wave 5 & AEA RCT Registry 0008561

## 1. Reading and Child Mental Health

**To what extent do the following statements apply to you?**

- ▶ I try to be nice to other people; their feelings are important to me.
- ▶ I am often restless; I can't sit still for long.
- ▶ I like to share with others.
- ▶ I get angry easily; I often lose my temper.
- ▶ I am mostly by myself; I prefer to keep to myself.
- ▶ I am helpful when others are hurt, sick, or sad.
- ▶ I am constantly moving and fidgety.
- ▶ I often get into fights with others.
- ▶ I am often unhappy or depressed; I cry a lot.
- ▶ I am easily distracted; I find it hard to concentrate.
- ▶ New situations make me nervous; I easily lose confidence.
- ▶ I am teased or bullied by others.
- ▶ I often help others voluntarily (parents, teachers, or peers).
- ▶ I think before I act.
- ▶ I get along better with adults than with peers.
- ▶ I have many fears; I am easily frightened.
- ▶ What I start, I finish; I can concentrate long enough.

**Scale:** 1 (not true) — 3 (certainly true).

**To what extent do these statements reflect your own everyday experiences?**

- ▶ I often find it difficult to focus on what's happening right now.
- ▶ I often do things without really focusing on them.
- ▶ I often don't focus on the here and now, but rather on the future or the past.
- ▶ I often do things automatically, without thinking about them much.
- ▶ I often do things in a hurry, without the necessary care.

**Scale:** 1 (not at all) — 7 (completely).

**Over the last four weeks, how often have you been bothered by any of the following problems?**

- ▶ I had little interest in or enjoyment of my activities.
- ▶ I was depressed, melancholy, or hopeless.
- ▶ I was nervous, anxious, or tense.
- ▶ I was unable to stop or control my worries.

**Scale:** 1 (not at all) — 4 ([almost] every day).

## Question: Life Satisfaction [back](#)

**How satisfied are you with your life, all things considered?**

**Scale:** 0 (completely dissatisfied) — 10 (completely satisfied).

**How often have the following things happened to you within the last four weeks?**

- ▶ I was insulted, made fun of, or teased.
- ▶ Other teenagers deliberately excluded me from activities or the group, or completely ignored me.
- ▶ I was hit, kicked, pushed, shoved, or locked up.
- ▶ Other teenagers told lies or spread rumors about me to make others dislike me.
- ▶ My money was stolen, or my belongings were damaged or stolen.
- ▶ I was threatened or forced to do things I didn't want to do.

**Scale:** 1 (not at all) — 7 (every day).

## Question and Items: Parental Stress Index [back](#)

Please indicate to what extent these statements apply to you and your child.

- ▶ My child is much more active than other children.
- ▶ Since having my child, I've been sick more often.
- ▶ To give my child the attention they need, I have to restrict myself more than I imagined.
- ▶ My child has more difficulty concentrating and paying attention than other children.
- ▶ I often feel exhausted because my child is so active.
- ▶ If my child can't have something, it's often difficult to calm them down.
- ▶ My child often reacts very strongly when something happens that they don't like.
- ▶ Since my child was born, I hardly have any time for myself.
- ▶ Some of my child's behaviors (e.g., dawdling, whining, disobeying, contradicting) cost me a lot of energy.
- ▶ I have the impression that my child needs more attention and care than other children.
- ▶ I sometimes feel like my child demands my attention constantly.
- ▶ When playing, my child is often impatient and gets angry easily.

**Scale:** 1 (does not apply) — 5 (exactly applies).

# 9. Appendix of the Pre-Analysis Plan Wave 5 & AEA RCT Registry 0008561

## 2. Spillover Effects in the Family

# Question and Items: Amount of Time Spend Reading (Alone)

back

The following question refers to your child who was born next after *TargetChild*.

**How much time does this child currently spend reading outside of school or work?**

*Please think of all possible occasions when this child reads, not only books or magazines, but also emails, text messages, or content on the internet.*

- ▶ On a typical school or workday, this child reads ...
  - ▶ ... 0 hours.
  - ▶ ... up to 0.5 hours.
  - ▶ ... more than 0.5 hours up to 1 hour.
  - ▶ ... more than 1 hour up to 1.5 hour.
  - ▶ ... more than 1.5 hours up to 2 hours.
  - ▶ ... more than 2 hours.
  
- ▶ On a typical weekend day (Saturday or Sunday), this child reads ...
  - ▶ *Same answer options as above.*

## Question and Items: Amount of Time Spend Reading (Alone)

back

**The following question refers to your child who was born next after *TargetChild*.**

**On how many days per week does this child usually read outside of school or work?**

*Please think here of books, e-books (e.g., for Kindle or Tolino), or magazines.*

- ▶ On no days
- ▶ On 1 day per week
- ▶ On 2 days per week
- ▶ On 3 days per week
- ▶ On 4 days per week
- ▶ On 5 days per week
- ▶ On 6 days per week
- ▶ On 7 days per week

## Question and Items: Amount of Time Spend Reading (With a Parent) [back](#)

**The following question refers to your child who was born next after *TargetChild*.**

**How often do you usually do the following activities with this child?**

- ▶ Reading books together (in print or electronic format).
  - ▶ Every day
  - ▶ At least once a week
  - ▶ At least once a month
  - ▶ At least once every six months
  - ▶ At least once a year
  - ▶ Never

# Question and Items: Reading Volume [back](#)

The following question refers to your child who was born next after *TargetChild*.

**How many books has this child read in total over the past 4 weeks?**

*By books, we mean both printed books and e-books (e.g., for Kindle or Tolino). Please enter the number separately for each type of book.*

- ▶ Number of e-books read:
  - ▶ No e-books
  - ▶ 1 e-book
  - ▶ 2 e-books
  - ▶ 3 e-books
  - ▶ 4 e-books
  - ▶ 5 e-books
  - ▶ More than 5 e-books
  
- ▶ Number of books read:
  - ▶ *Same answer options as above.*

The following question refers to your child who was born next after *TargetChild*.

How much does this child enjoy reading books, e-books (e.g., for Kindle or Tolino), or magazines in their free time?

Scale: 0 (not at all) — 10 (very much)

**The following question refers to your child who was born next after *TargetChild*.**

**To what extent do you agree with the following statements about this child's reading behavior?**

- ▶ My child sometimes has difficulty really understanding a text well.
- ▶ My child can understand texts very well and quickly.
- ▶ My child has to read many things several times before he/she has really understood them.

**Scale:** 1 (strongly disagree) — 4 (strongly disagree)

## How much time do you currently spend reading outside of work?

*Please think of all possible occasions when you read, not only books or magazines, but also emails, text messages, or content on the internet.*

- ▶ On a typical weekday, I read ...
  - ▶ ... 0 hours.
  - ▶ ... up to 0.5 hours.
  - ▶ ... more than 0.5 hours up to 1 hour.
  - ▶ ... more than 1 hour up to 1.5 hour.
  - ▶ ... more than 1.5 hours up to 2 hours.
  - ▶ ... more than 2 hours.
  
- ▶ On a typical weekend day outside of work, I read ...
  - ▶ *Same answer options as above.*

### **On how many days per week do you usually read outside of work?**

*Please think here of books, e-books (e.g., for Kindle or Tolino), or magazines.*

- ▶ On no days
- ▶ On 1 day per week
- ▶ On 2 days per week
- ▶ On 3 days per week
- ▶ On 4 days per week
- ▶ On 5 days per week
- ▶ On 6 days per week
- ▶ On 7 days per week

### **How many books have you read in total over the past 4 weeks?**

*By books, we mean both printed books and e-books (e.g., for Kindle or Tolino). Please enter the number separately for each type of book.*

- ▶ Number of e-books read:
  - ▶ No e-books
  - ▶ 1 e-book
  - ▶ 2 e-books
  - ▶ 3 e-books
  - ▶ 4 e-books
  - ▶ 5 e-books
  - ▶ More than 5 e-books
  
- ▶ Number of books read:
  - ▶ *Same answer options as above.*

**How much do you enjoy reading books, e-books (e.g., for Kindle or Tolino), or magazines in your free time?**

**Scale:** 0 (not at all) — 10 (very much)

**In the past 3 months, have you and your child borrowed a book (either electronically or in print) from a public library or read one there on site?**

- ▶ Yes
- ▶ No

**Do you talk with your child about books/e-books that your child has read or would like to read?**

- ▶ Yes
- ▶ No

# 9. Appendix of the Pre-Analysis Plan Wave 5 & AEA RCT Registry 0008561

## 3. Disengagement from School

# Question and Items: Disengagement

[back](#)

To what extent do you agree with the following statements?

- ▶ I often skip classes or parts of the school day.
- ▶ I give up quickly when schoolwork becomes difficult.
- ▶ I do just enough to get by at school.
- ▶ I often do not do my homework.
- ▶ I spend class time doing things that have nothing to do with school (e.g., daydreaming, using my phone).
- ▶ I don't think I belong at this school.
- ▶ What we learn rarely interests or excites me.
- ▶ I don't feel supported or taken seriously by the teachers at this school.
- ▶ I am usually bored in class.
- ▶ I don't like being at school.
- ▶ I don't see the point of what we learn in school.
- ▶ I rarely try to connect what I learn in school with things outside of school.
- ▶ I don't believe that how hard I try in school is important for my future.
- ▶ I often catch myself doing only the bare minimum in class.
- ▶ I don't set learning goals for myself.
- ▶ I feel that my opinion doesn't count at school.
- ▶ I don't have many positive relationships with my classmates.
- ▶ I often feel like an outsider at this school.
- ▶ I do not take part in extracurricular activities.

**Scale:** 1 (strongly disagree) — 5 (strongly agree).

### **How many days in the past two months were you not at school?**

*This refers to full days of absence. If you do not remember exactly how many days you were not at school in the past two months, please try to estimate the number of days.*

- ▶ No days
- ▶ 1 to 3 days
- ▶ 4 to 5 days
- ▶ 6 to 10 days
- ▶ More than 10 days
- ▶ I don't know

**To what extent do the following statements about learning at school apply?**

- ▶ I study for the subject German because . . .
  - ▶ . . . I enjoy the content.
  - ▶ . . . the content matches my personal interests.
  - ▶ . . . I consider the content important.
  - ▶ . . . I find the content very interesting.
  
- ▶ I study for the subject Mathematics because . . .
  - ▶ *Same four statements as above.*

**Scale:** 1 (completely agree) — 4 (completely disagree)

# 9. Appendix of the Pre-Analysis Plan Wave 5 & AEA RCT Registry 0008561

## 4. Feedback from Teachers

**To what extent do the following statements about the relationship between you and your teacher apply?**

- ▶ Please think of your German teacher.
  - ▶ My teacher supports me by telling me what I do well and what I do poorly.
  - ▶ My teacher explains to me what I need to do to improve my work.
  - ▶ The feedback from my teacher motivates me to keep going, even when the work is difficult.
  - ▶ The feedback from my teacher is mostly positive.
  - ▶ My teacher points out my mistakes more often than my good performance.
  - ▶ The feedback from my teacher makes me feel good about my progress.
  
- ▶ Please think of your math teacher now.
  - ▶ *Same six statements as above.*

**Scale:** 1 (does not apply at all) — 5 (completely applies)

# 9. Appendix of the Pre-Analysis Plan Wave 5 & AEA RCT Registry 0008561

## 5. Returns to (Reading) Motivation

**To what extent do you think the following statements apply?**

- ▶ I like reading very much.
- ▶ Reading is fun for me.
- ▶ Reading is boring.
- ▶ Reading is not worth the effort.
- ▶ In my opinion, reading is very interesting.
- ▶ I find reading very entertaining.
- ▶ While I was reading, I thought about how much I liked it.

**Scale:** 1 (does not apply) — 7 (exactly applies)