Online Supplemental Material A

Materials and Methods

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Preliminary Note

This supplement provides additional technical details regarding the analytical framework adopted to generate the database of single- and multilevel design parameters for students' socio-emotional learning (SEL) outcomes. We closely followed the methodology applied in Brunner et al. (2025) and Stallasch et al. (2024). For a profound description of statistical concepts and formulations of the mathematical expressions, we refer to the Online Supplemental Material of Stallasch et al. (2024).

The project repository for this work is hosted on the Open Science Framework (OSF) and is accessible at https://osf.io/jkemy/. It contains the complete R code to reproduce all analysis steps of the present study—data preparation, single- and multilevel modeling, and meta-analysis—as well as detailed tables on sample characteristics, imputation procedures, and results of the meta-analytic sensitivity analyses.

A1   Studies and Samples

As delineated in the main manuscript, our analyses draw on four large-scale assessment studies. Specifically, we used data from nine probability samples of the general German student population, analyzed separately by grade/wave:

- Assessment of Student Achievements in German and English as a Foreign Language (DESI; DESI-Konsortium, 2008): DESI followed students from the beginning (first half-year) to the end (second half-year) of grade 9. The data (Klieme, 2012) were provided by the Research Data Center (FDZ) at the Institute for Educational Quality Improvement (IQB).

- IQB Trends in Student Achievement 2016 (Stanat et al., 2017): The 2016 cycle of the IQB Trends concentrated on students in grade 4. The data (Stanat et al., 2019) were provided by the FDZ at the IQB.

- Programme for International Student Assessment (PISA; Klieme et al., 2010; Prenzel et al., 2006; Prenzel, Artelt, et al., 2008; Prenzel, Sälzer, et al., 2013): Four PISA cycles were included. We analyzed data from students in grade 9 to 10 in the PISA 2003 cycle (Prenzel, Baumert, et al., 2013), and from students in grade 9 in the PISA 2006, 2009, and 2012 cycles (Klieme et al., 2013; Prenzel et al., 2010, 2015). The data were provided by the FDZ at the IQB.

- National Educational Panel Study (NEPS; Blossfeld & Roßbach, 2019): Three starting cohorts (SC) were included. We analyzed data of grade 1 students through grade 4 in NEPS-SC2 (NEPS Network, 2024c), grade 5 students through grade 12 in NEPS-SC3 (NEPS Network, 2024a), and grade 9 students through grade 13 in NEPS-SC4 (NEPS Network, 2024b). The NEPS is carried out by the Leibniz Institute for Educational Trajectories (LIfBi, Germany) in cooperation with a nationwide network. The data were provided by the FDZ at the LIfBi.

Sample Selection

Our strategy for selecting students from the total base samples of the large-scale assessments to create the analysis samples was as follows. Students were excluded from the analyses when (a) no information on the attended classroom, school, and/or school type was available; (b) they attended a school type not commonly offered nationwide within the regular school system (e.g., reform or special schools); (c) they repeated or skipped a school year or left their cohort for other reasons; (d) no valid SEL data were available. None of the PISA 2003 samples were subject to these exclusion criteria. Table A1.1 lists the number of excluded students broken down by sample and grade.

Sample Selectivity

We performed sensitivity analyses to test for systematic differences in SEL and sociodemographic measures between students included in the analyses and those who were excluded. The results listed in Tables A1.2 to A1.12 indicate that the analysis samples were largely comparable to the total base samples across variables, with a median selectivity effect size of $d = 0.00$ $(-0.08 \leq d \leq +0.08)$. A notable exception was found for the HISEI measure in PISA 2012: Students included in the analysis sample were slightly negatively selected in terms of their HISEI scores, meaning that the HISEI was smaller compared to the total base sample ($d = -0.19$; Table A1.12).

Table A1.1
Number and Percentage of Excluded Students

Sample	Grade	*N* TBS	Exclusion criteria				%
			No valid information on classroom/ school/school type	Outside of regular school system (e.g., reform/special school)	Repeated/ skipped a class or left cohort	No valid SEL data	
DESI	9/1	10,543	0	0	0	929	9
DESI	9/2	10,543	0	0	0	368	3
IQB Trends	4	30,720	0	1583	377	2424	14
PISA 2003	9	6,020	0	0	0	0	0
PISA 2003	10	6,020	0	0	0	0	0
PISA 2006	9	1,638	0	0	0	31	2
PISA 2009	9	7,341	0	0	0	1	0
PISA 2012	9	9,998	0	153	0	1073	12
NEPS-SC2	1	6,733	2	0	n/a	145	2
NEPS-SC2	2	6,707	388	0	n/a	71	7
NEPS-SC2	3	6,530	976	0	n/a	2	15
NEPS-SC2	4	6,322	907	0	n/a	0	14
NEPS-SC3	5	5,208	55	9	0	39	2
NEPS-SC3	6	4,876	15	9	21	0	1
NEPS-SC3	7	6,220	139	54	2	0	3
NEPS-SC3	8	5,588	231	27	0	0	5
NEPS-SC3	9/1	4,898	301	38	0	0	7
NEPS-SC3	9/2	4,627	315	37	4	0	8
NEPS-SC3	10	4,011	548	17	0	0	14
NEPS-SC3	11	1,943	n/a	2	95	0	5
NEPS-SC3	12	1,786	n/a	2	142	0	8
NEPS-SC4	9/1	15,201	173	171	0	391	5
NEPS-SC4	9/2	14,912	134	168	0	70	2
NEPS-SC4	10	11,704	1506	148	0	4	14
NEPS-SC4	11	4,928	0	113	247	1	7
NEPS-SC4	12	4,453	0	94	391	1	11
NEPS-SC4	13	678	0	80	36	0	17
Total		200,148	5,690	2,705	1,315	5,550	8

Note. The table can be read as follows, e.g., first row: For 929 out of 10,543 students in grade 9 (first half-year) from DESI, valid SEL data were not available, which amounts to around 9% of the total base sample of DESI. Cells containing n/a for NEPS-SC2 indicate that it was not possible to identify whether students repeated/skipped a class or whether they left their cohort due to other reasons as student-level information on the currently attended grade was not available per wave. Consequently, in grades 2, 3, and 4, we only analyzed data from students who took also part in NEPS-SC2 in wave 3 (i.e., grade 1). TBS = Total base sample.

Table A1.2

Estimates of Sample Selectivity for DESI

Method	Domain	Context	Measure	Grade	Wave	Grade 9/1					Grade 9/2				
						TBS N = 10,543		AS N = 10,175			TBS N = 10,543		AS N = 9,614		
						M	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*
Student	SO	Verbal: German	Self-concept	9	1	3.01	0.54	3.01	0.54	0.00	3.01	0.54	3.01	0.54	0.00
Student	SO	Verbal: German	Self-concept	9	2						3.08	0.57	3.08	0.57	0.00
Student	SO	Verbal: German	Self-concept advanced skills	9	1	4.56	0.71	4.56	0.71	0.00	4.56	0.71	4.56	0.71	0.00
Student	SO	Verbal: German	Self-concept advanced skills	9	2						4.56	0.74	4.56	0.74	0.00
Student	SO	Verbal: German	Self-concept basic skills	9	1	4.54	0.77	4.54	0.77	0.00	4.54	0.77	4.54	0.77	0.00
Student	SO	Verbal: German	Self-concept basic skills	9	2						4.55	0.81	4.55	0.81	0.00
Student	SO	Verbal: German	Self-efficacy	9	1	3.01	0.46	3.01	0.46	0.00	3.01	0.46	3.01	0.46	0.00
Student	SO	Verbal: German	Self-efficacy	9	2						2.96	0.56	2.96	0.56	0.00
Student	SO	Verbal: English	Self-concept	9	1	2.97	0.62	2.97	0.62	0.00	2.97	0.62	2.97	0.62	0.00
Student	SO	Verbal: English	Self-concept	9	2						3.00	0.68	3.00	0.68	0.00
Student	SO	Verbal: English	Self-concept advanced skills	9	1	4.22	0.87	4.22	0.87	0.00	4.22	0.87	4.22	0.87	0.00
Student	SO	Verbal: English	Self-concept advanced skills	9	2						4.21	0.89	4.21	0.89	0.00
Student	SO	Verbal: English	Self-efficacy	9	1	3.02	0.50	3.02	0.50	0.00	3.02	0.50	3.02	0.50	0.00
Student	SO	Verbal: English	Self-efficacy	9	2						2.94	0.60	2.94	0.60	0.00
Student	TO	Verbal: German	Attitude towards German	9	2						2.30	0.63	2.30	0.63	0.00
Student	TO	Verbal: German	Attitude towards reading	9	1	2.65	0.75	2.65	0.75	0.00	2.65	0.75	2.65	0.75	0.00
Student	TO	Verbal: German	Attitude towards reading	9	2						2.63	0.74	2.63	0.74	0.00
Student	TO	Verbal: German	Expectancy for success	9	1	2.27	0.71	2.27	0.71	0.00	2.27	0.71	2.27	0.71	0.00
Student	TO	Verbal: English	Attitude towards English	9	1	2.57	0.65	2.57	0.65	0.00	2.57	0.65	2.57	0.65	0.00
Student	TO	Verbal: English	Attitude towards English	9	2						2.49	0.69	2.49	0.69	0.00
Student	TO	Verbal: English	Enjoyment of reading	9	1	1.93	0.58	1.93	0.58	0.00	1.93	0.58	1.93	0.58	0.00
Student	TO	Verbal: English	Enjoyment of reading	9	2						1.96	0.62	1.96	0.62	0.00
Student	TO	Verbal: English	Expectancy for success	9	1	2.03	0.76	2.03	0.76	0.00	2.03	0.76	2.03	0.76	0.00
Student	TO	Verbal: English	Interest in reading	9	1	2.77	0.92	2.77	0.92	0.00	2.77	0.92	2.77	0.92	0.00
Student	TO	Verbal: English	Interest in reading	9	2						2.66	0.97	2.66	0.97	0.00

(Table continues)

Table A1.2 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Grade 9/1					Grade 9/2				
						TBS N = 10,543		AS N = 10,175			TBS N = 10,543		AS N = 9,614		
						M	SD	M	SD	d	M	SD	M	SD	d
			Age			177.83	8.72	177.54	8.59	-0.03	177.83	8.72	177.72	8.68	-0.01
			Gender			0.53	0.50	0.53	0.50	0.02	0.53	0.50	0.53	0.50	0.01
			Migration background			0.21	0.41	0.22	0.41	0.00	0.21	0.41	0.21	0.41	0.00
			HISEI			51.87	15.95	52.03	15.95	0.01	51.87	15.95	51.91	15.94	0.00
			Educational attainment			14.72	2.65	14.75	2.64	0.01	14.72	2.65	14.73	2.64	0.00

Note. The effect size Cohen's *d* (effect size in *SD* units) indicates the selectivity of the analysis sample for each grade as used in the present paper. A positive value of *d* implies that the value of a certain measure was larger in the total base sample compared to the analysis sample. A negative value of *d* implies that the value of a certain measure was smaller in the total base sample compared to the analysis sample. TBS = Total base sample. AS = Analysis sample. SO = Self-orientation. OO = Other-orientation. TO = Task-orientation. HISEI = Highest International Socio-Economic Index of Occupational Status (Ganzeboom & Treiman, 1996).

Table A1.3

Estimates of Sample Selectivity for IQB Trends 2016

Method	Domain	Context	Measure	Grade	Wave	Grade 4				
						TBS N = 30,720		AS N = 26,336		
						M	*SD*	*M*	*SD*	*d*
Student	SO	General	Self-esteem	4		3.51	0.58	3.51	0.57	0.00
Student	SO	Mathematics	Anxiety	4		2.06	0.84	2.06	0.84	0.00
Student	SO	Mathematics	Self-concept	4		3.16	0.79	3.16	0.78	0.00
Student	SO	Verbal: German	Anxiety	4		1.87	0.81	1.87	0.81	0.00
Student	SO	Verbal: German	Self-concept	4		3.15	0.64	3.16	0.63	0.01
Student	OO	School	Academic support for classmates	4		3.09	0.72	3.09	0.71	0.00
Student	OO	School	Academic support from classmates	4		2.80	0.83	2.80	0.82	0.00
Student	OO	School	Social integration	4		2.82	0.62	2.82	0.61	-0.01
Student	OO	School	Victimization	4		1.64	0.61	1.63	0.60	-0.02
Student	TO	School	Satisfaction with school	4		2.98	0.76	2.98	0.75	-0.01
Student	TO	Mathematics	Boredom	4		1.76	0.77	1.76	0.77	0.00
Student	TO	Mathematics	Interest	4		3.19	0.82	3.19	0.82	-0.01
Student	TO	Mathematics	Intrinsic value	4		2.62	0.96	2.62	0.96	0.00
Student	TO	Verbal: German	Boredom	4		1.67	0.74	1.67	0.74	0.00
Student	TO	Verbal: German	Interest	4		2.97	0.75	2.96	0.74	-0.01
Student	TO	Verbal: German	Intrinsic value	4		2.38	0.82	2.38	0.82	0.00
Parent	TO	School	Willingness to learn and perform	4		2.90	0.68	2.91	0.68	0.02
			Age			125.89	6.41	125.36	6.04	-0.08
			Gender			0.48	0.50	0.49	0.50	0.02
			Migration background			0.31	0.46	0.31	0.46	0.00
			HISEI			52.14	20.76	52.76	20.67	0.03
			Educational attainment			14.29	3.35	14.38	3.32	0.03

Note. The effect size Cohen's *d* (effect size in *SD* units) indicates the selectivity of the analysis sample for each grade as used in the present paper. A positive value of *d* implies that the value of a certain measure was larger in the total base sample compared to the analysis sample. A negative value of *d* implies that the value of a certain measure was smaller in the total base sample compared to the analysis sample. TBS = Total base sample. AS = Analysis sample. SO = Self-orientation. OO = Other-orientation. TO = Task-orientation. HISEI = Highest International Socio-Economic Index of Occupational Status (Ganzeboom & Treiman, 1996).

Table A1.4

Estimates of Sample Selectivity for NEPS-SC2

Method	Domain	Context	Measure	Grade	Wave	Grade 1 TBS N = 6,733		Grade 1 AS N = 6,586			Grade 2 TBS N = 6,707		Grade 2 AS N = 6,248			Grade 3 TBS N = 6,530		Grade 3 AS N = 5,552			Grade 4 TBS N = 6,322		Grade 4 AS N = 5,415		
						M	SD	M	SD	d	M	SD	M	SD	d	M	SD	M	SD	d	M	SD	M	SD	d
Student	SO	ICT	Computer self-concept	3	5											2.98	0.83	2.98	0.83	-0.01	2.98	0.83	2.98	0.83	0.00
Student	TO	General	RIASEC: Artistic interests (IILS)	4	6																3.28	1.08	3.27	1.08	-0.01
Student	TO	General	RIASEC: Conventional interests (IILS)	4	6																2.56	1.00	2.57	1.01	0.00
Student	TO	General	RIASEC: Enterprising interests (IILS)	4	6																2.61	1.04	2.60	1.04	-0.01
Student	TO	General	RIASEC: Investigative interests (IILS)	4	6																3.20	1.14	3.19	1.14	-0.01
Student	TO	General	RIASEC: Realistic interests (IILS)	4	6																3.23	1.08	3.22	1.08	-0.01
Student	TO	General	RIASEC: Social interests (IILS)	4	6																3.27	1.00	3.26	1.00	-0.01
Student	TO	School	Effort	3	5											3.30	0.54	3.31	0.54	0.01	3.30	0.54	3.31	0.54	0.01
Student	TO	School	Effort	4	6																3.26	0.52	3.27	0.51	0.01
Student	TO	School	Enjoyment of learning	3	5											3.00	0.95	2.99	0.94	0.00	3.00	0.95	3.00	0.95	0.00
Student	TO	School	Enjoyment of learning	4	6																2.79	0.90	2.76	0.91	-0.03
Student	TO	ICT	Computer interest	3	5											3.18	0.81	3.17	0.81	-0.01	3.18	0.81	3.17	0.81	-0.01
Student	TO	ICT	Computer value	3	5											2.71	0.89	2.70	0.88	-0.01	2.71	0.89	2.71	0.89	0.00
Parent	SO	General	Big Five: Conscientiousness	2	4						5.99	1.83	6.00	1.83	0.00	5.99	1.83	6.03	1.82	0.02	5.98	1.84	6.01	1.83	0.01
Parent	SO	General	Big Five: Neuroticism	2	4						3.55	1.81	3.55	1.80	0.00	3.55	1.81	3.54	1.79	-0.01	3.54	1.81	3.55	1.80	0.00
Parent	OO	General	Big Five: Agreeableness	2	4						5.93	1.77	5.94	1.76	0.00	5.94	1.77	5.96	1.76	0.02	5.94	1.77	5.96	1.76	0.02
Parent	OO	General	Big Five: Extraversion	2	4						7.98	1.67	7.97	1.67	0.00	7.98	1.66	7.99	1.66	0.00	7.99	1.67	7.98	1.67	0.00
Parent	OO	General	SDQ: Problem behavior	3	5											1.24	1.44	1.21	1.41	-0.02	1.24	1.44	1.21	1.41	-0.02
Parent	OO	General	SDQ: Prosocial behavior	3	5											8.65	1.40	8.66	1.39	0.01	8.65	1.40	8.67	1.40	0.01
Parent	OO	General	TASB: Disruptive behavior	2	4						6.25	2.39	6.24	2.38	0.00	6.25	2.39	6.21	2.36	-0.02	6.25	2.39	6.21	2.36	-0.02
Parent	OO	School	Social integration	1	3	3.61	0.46	3.61	0.46	0.00	3.61	0.47	3.61	0.46	0.00	3.61	0.46	3.62	0.45	0.02	3.61	0.46	3.62	0.46	0.02
Parent	OO	School	Social integration	2	4						3.61	0.45	3.61	0.45	0.00	3.61	0.45	3.62	0.44	0.02	3.61	0.45	3.62	0.44	0.01
Parent	TO	General	Big Five: Openness	2	4						7.96	1.46	7.96	1.46	0.00	7.96	1.45	8.00	1.42	0.03	7.97	1.45	7.98	1.44	0.00
Parent	TO	School	Autonomy	1	3	3.33	0.61	3.33	0.61	0.00	3.33	0.61	3.34	0.60	0.01	3.34	0.61	3.37	0.57	0.06	3.34	0.60	3.36	0.59	0.02
Parent	TO	School	Autonomy	2	4						3.32	0.61	3.32	0.61	0.00	3.32	0.61	3.34	0.59	0.04	3.32	0.61	3.33	0.59	0.02
Parent	TO	School	Effort	1	3	3.16	0.54	3.16	0.54	0.00	3.16	0.54	3.17	0.54	0.01	3.16	0.54	3.18	0.53	0.05	3.16	0.54	3.18	0.54	0.03
Parent	TO	School	Effort	2	4						3.11	0.55	3.12	0.55	0.01	3.11	0.55	3.13	0.54	0.04	3.11	0.55	3.12	0.55	0.02
Parent	TO	School	Effort	3	5											3.08	0.56	3.09	0.55	0.02	3.08	0.56	3.09	0.56	0.01
Parent	TO	School	Effort	4	6																3.09	0.55	3.10	0.55	0.02

(Table continues)

Table A1.4 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Grade 1 TBS N = 6,733 M	SD	Grade 1 AS N = 6,586 M	SD	d	Grade 2 TBS N = 6,707 M	SD	Grade 2 AS N = 6,248 M	SD	d	Grade 3 TBS N = 6,530 M	SD	Grade 3 AS N = 5,552 M	SD	d	Grade 4 TBS N = 6,322 M	SD	Grade 4 AS N = 5,415 M	SD	d
Parent	TO	School	Enjoyment of learning	1	3	3.65	0.48	3.65	0.48	0.00	3.65	0.48	3.65	0.47	0.01	3.65	0.48	3.67	0.45	0.04	3.65	0.48	3.66	0.46	0.02
Parent	TO	School	Enjoyment of learning	2	4						3.57	0.52	3.57	0.52	0.00	3.57	0.52	3.58	0.50	0.03	3.57	0.52	3.58	0.51	0.02
Parent	TO	School	Enjoyment of learning	3	5											3.47	0.54	3.47	0.54	0.01	3.47	0.54	3.48	0.54	0.01
Parent	TO	School	Enjoyment of learning	4	6																3.44	0.56	3.44	0.55	0.01
Teacher	SO	General	Big Five: Conscientiousness	3	5											5.82	2.64	5.82	2.64	0.00	5.81	2.64	5.83	2.64	0.01
Teacher	SO	General	Big Five: Neuroticism	3	5											3.83	2.29	3.83	2.29	0.00	3.82	2.29	3.81	2.29	-0.01
Teacher	OO	General	Big Five: Agreeableness	3	5											6.94	2.34	6.94	2.34	0.00	6.94	2.34	6.96	2.34	0.01
Teacher	OO	General	Big Five: Extraversion	3	5											6.56	2.38	6.56	2.38	0.00	6.57	2.39	6.57	2.39	0.00
Teacher	OO	General	SDQ: Problem behavior	3	5											1.48	1.85	1.48	1.84	0.00	1.48	1.85	1.47	1.84	-0.01
Teacher	OO	General	SDQ: Prosocial behavior	3	5											7.57	2.29	7.57	2.29	0.00	7.57	2.29	7.57	2.29	0.00
Teacher	OO	General	TASB: Disruptive behavior	2	4						6.21	3.23	6.21	3.23	0.00	6.22	3.24	6.11	3.18	-0.04	6.23	3.24	6.11	3.17	-0.03
Teacher	TO	General	Big Five: Openness	3	5											6.50	2.44	6.51	2.43	0.00	6.51	2.44	6.52	2.43	0.01
Teacher	TO	School	Effort	1	3	3.05	0.71	3.05	0.71	0.00	3.05	0.72	3.06	0.71	0.01	3.05	0.72	3.10	0.69	0.07	3.05	0.72	3.08	0.70	0.03
Teacher	TO	School	Enjoyment of learning	1	3	3.47	0.59	3.47	0.59	0.00	3.47	0.59	3.48	0.58	0.01	3.47	0.59	3.50	0.56	0.05	3.47	0.59	3.49	0.58	0.02
			Age			83.47	4.66	83.47	4.64	0.00	83.47	4.66	83.40	4.58	-0.02	83.49	4.67	83.43	4.51	-0.01	83.49	4.65	83.39	4.50	-0.02
			Gender			0.51	0.50	0.51	0.50	0.00	0.51	0.50	0.51	0.50	0.00	0.51	0.50	0.51	0.50	0.00	0.51	0.50	0.52	0.50	0.01
			Migration background			0.26	0.44	0.26	0.44	0.00	0.26	0.44	0.25	0.43	-0.01	0.26	0.44	0.25	0.43	-0.02	0.26	0.44	0.25	0.43	-0.01
			HISEI			60.71	19.15	60.76	19.12	0.00	60.72	19.16	61.05	19.01	0.02	60.80	19.15	61.70	18.67	0.05	60.91	19.11	61.33	18.80	0.02
			Educational attainment			14.95	2.35	14.96	2.35	0.00	14.96	2.35	14.98	2.34	0.01	14.97	2.36	15.05	2.33	0.04	14.97	2.36	15.00	2.34	0.01

Note. The effect size Cohen's *d* (effect size in *SD* units) indicates the selectivity of the analysis sample for each grade as used in the present paper. A positive value of *d* implies that the value of a certain measure was larger in the total base sample compared to the analysis sample. A negative value of *d* implies that the value of a certain measure was smaller in the total base sample compared to the analysis sample. TBS = Total base sample. AS = Analysis sample. SO = Self-orientation. OO = Other-orientation. TO = Task-orientation. HISEI = Highest International Socio-Economic Index of Occupational Status (Ganzeboom & Treiman, 1996).

Table A1.5

Estimates of Sample Selectivity for NEPS-SC3 (Grades 5 to 8)

Method	Domain	Context	Measure	Grade	Wave	Grade 5					Grade 6					Grade 7					Grade 8				
						TBS N = 5,208		AS N = 5,105			TBS N = 4,876		AS N = 4,831			TBS N = 6,220		AS N = 6,025			TBS N = 5,588		AS N = 5,330		
						M	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*
Student	SO	General	Big Five: Conscientiousness	7	3											3.23	0.86	3.23	0.86	0.00	3.24	0.85	3.25	0.85	0.01
Student	SO	General	Big Five: Conscientiousness	9	5																				
Student	SO	General	Big Five: Neuroticism	7	3											2.83	0.83	2.83	0.83	0.00	2.83	0.83	2.83	0.83	0.00
Student	SO	General	Big Five: Neuroticism	9	5																				
Student	SO	General	Self-esteem	5	1	39.38	6.72	39.40	6.71	0.00	39.57	6.65	39.60	6.64	0.01	39.71	6.67	39.81	6.61	0.01	39.93	6.59	40.04	6.54	0.02
Student	SO	General	Self-esteem	9	5																				
Student	SO	General	Self-esteem	12	9																				
Student	SO	School	Academic self-concept	5	1	3.17	0.59	3.17	0.59	0.00	3.18	0.58	3.19	0.58	0.01	3.19	0.58	3.20	0.57	0.01	3.21	0.56	3.22	0.55	0.01
Student	SO	School	Academic self-concept	9	5																				
Student	SO	School	Academic self-concept	12	9																				
Student	SO	Mathematics	Helplessness	7	3											1.69	0.70	1.69	0.70	0.00	1.67	0.69	1.67	0.68	-0.01
Student	SO	Mathematics	Helplessness	9	6																				
Student	SO	Mathematics	Self-concept	5	1	2.94	0.85	2.94	0.85	0.00	2.96	0.84	2.96	0.84	0.00	2.97	0.84	2.97	0.84	0.01	2.98	0.83	2.98	0.83	0.00
Student	SO	Mathematics	Self-concept	9	5																				
Student	SO	Mathematics	Self-efficacy	7	3											2.83	0.73	2.84	0.73	0.00	2.84	0.72	2.85	0.72	0.01
Student	SO	Mathematics	self-concept	12	9																				
Student	SO	Verbal: German	Helplessness	7	3											1.75	0.64	1.75	0.64	0.00	1.74	0.64	1.73	0.64	-0.02
Student	SO	Verbal: German	Helplessness	9	6																				
Student	SO	Verbal: German	Reading self-concept	5	1	3.04	0.74	3.05	0.73	0.01	3.06	0.73	3.06	0.73	0.00	3.08	0.72	3.09	0.71	0.01	3.09	0.72	3.10	0.71	0.01
Student	SO	Verbal: German	Reading self-concept	7	3											3.04	0.65	3.04	0.65	0.00	3.05	0.65	3.05	0.65	0.01
Student	SO	Verbal: German	Reading self-concept	8	4																3.12	0.67	3.13	0.67	0.01
Student	SO	Verbal: German	Reading self-concept	9	6																				
Student	SO	Verbal: German	Self-concept	5	1	3.00	0.65	3.01	0.65	0.00	3.01	0.65	3.02	0.65	0.00	3.03	0.64	3.03	0.64	0.01	3.05	0.63	3.06	0.63	0.02
Student	SO	Verbal: German	Self-concept	9	5																				
Student	SO	Verbal: German	Self-concept	12	9																				
Student	OO	General	Big Five: Agreeableness	7	3											3.45	0.65	3.46	0.65	0.00	3.46	0.65	3.46	0.65	0.01
Student	OO	General	Big Five: Agreeableness	9	5																				
Student	OO	General	Big Five: Extraversion	7	3											3.40	0.79	3.40	0.79	0.00	3.40	0.78	3.40	0.78	0.00
Student	OO	General	Big Five: Extraversion	9	5																				
Student	OO	General	ICQ: Ability to deal with conflict	12	9																				
Student	OO	General	ICQ: Assertiveness	12	9																				

(Table continues)

Table A1.5 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Grade 5 TBS N = 5,208		Grade 5 AS N = 5,105			Grade 6 TBS N = 4,876		Grade 6 AS N = 4,831			Grade 7 TBS N = 6,220		Grade 7 AS N = 6,025			Grade 8 TBS N = 5,588		Grade 8 AS N = 5,330		
						M	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*
Student	OO	General	SDQ: Problem behavior	6	2						2.44	1.88	2.43	1.88	0.00	2.36	1.84	2.34	1.83	-0.01	2.33	1.84	2.30	1.82	-0.01
Student	OO	General	SDQ: Problem behavior	9	6																				
Student	OO	General	SDQ: Prosocial behavior	6	2						7.34	1.94	7.34	1.94	0.00	7.37	1.91	7.37	1.91	0.00	7.39	1.90	7.41	1.89	0.01
Student	OO	General	SDQ: Prosocial behavior	9	6																				
Student	TO	General	Big Five: Openness	7	3											3.44	0.96	3.45	0.96	0.00	3.45	0.96	3.45	0.96	0.01
Student	TO	General	Big Five: Openness	9	5																				
Student	TO	General	RIASEC: Artistic interests (IILS)	6	2						3.13	1.03	3.13	1.03	0.00	3.11	1.02	3.12	1.02	0.00	3.12	1.02	3.13	1.02	0.00
Student	TO	General	RIASEC: Artistic interests (IILS)	9	6																				
Student	TO	General	RIASEC: Artistic interests (IILS)	12	9																				
Student	TO	General	RIASEC: Conventional interests (IILS)	6	2						2.34	0.87	2.34	0.87	0.00	2.32	0.86	2.32	0.86	-0.01	2.33	0.87	2.32	0.87	0.00
Student	TO	General	RIASEC: Conventional interests (IILS)	9	6																				
Student	TO	General	RIASEC: Conventional interests (IILS)	12	9																				
Student	TO	General	RIASEC: Enterprising interests (IILS)	6	2						2.85	0.96	2.85	0.96	0.00	2.85	0.95	2.84	0.95	0.00	2.83	0.94	2.82	0.95	-0.01
Student	TO	General	RIASEC: Enterprising interests (IILS)	9	6																				
Student	TO	General	RIASEC: Enterprising interests (IILS)	12	9																				
Student	TO	General	RIASEC: Investigative interests (IILS)	6	2						3.09	1.01	3.09	1.01	0.00	3.09	1.01	3.09	1.01	0.00	3.09	1.00	3.09	1.00	0.00
Student	TO	General	RIASEC: Investigative interests (IILS)	9	6																				
Student	TO	General	RIASEC: Investigative interests (IILS)	12	9																				
Student	TO	General	RIASEC: Realistic interests (IILS)	6	2						2.99	1.09	2.99	1.09	0.00	2.98	1.09	2.98	1.08	0.00	2.97	1.08	2.97	1.08	0.00
Student	TO	General	RIASEC: Realistic interests (IILS)	9	6																				
Student	TO	General	RIASEC: Realistic interests (IILS)	12	9																				
Student	TO	General	RIASEC: Social interests (IILS)	6	2						3.40	0.91	3.40	0.91	0.00	3.41	0.91	3.40	0.91	0.00	3.41	0.90	3.42	0.90	0.01
Student	TO	General	RIASEC: Social interests (IILS)	9	6																				
Student	TO	General	RIASEC: Social interests (IILS)	12	9																				
Student	TO	General	TenFlex: Flexibility	10	7																				
Student	TO	General	TenFlex: Persistence	10	7																				
Student	TO	School	Achievement-related learning motivation	8	4																3.21	0.59	3.21	0.58	0.01
Student	TO	School	Achievement-related learning motivation	11	8																				
Student	TO	School	Competitive learning motivation	8	4																2.26	0.75	2.25	0.75	-0.01
Student	TO	School	Competitive learning motivation	11	8																				
Student	TO	School	Job-related learning motivation	8	4																3.49	0.52	3.50	0.51	0.01
Student	TO	School	Job-related learning motivation	11	8																				

(Table continues)

Table A1.5 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Grade 5 TBS N=5,208 M	SD	Grade 5 AS N=5,105 M	SD	d	Grade 6 TBS N=4,876 M	SD	Grade 6 AS N=4,831 M	SD	d	Grade 7 TBS N=6,220 M	SD	Grade 7 AS N=6,025 M	SD	d	Grade 8 TBS N=5,588 M	SD	Grade 8 AS N=5,330 M	SD	d
Student	TO	Mathematics	Interest	6	2						2.21	0.78	2.21	0.78	0.00	2.19	0.78	2.19	0.78	0.00	2.19	0.77	2.18	0.77	0.00
Student	TO	Mathematics	Interest	9	6																				
Student	TO	Mathematics	Intrinsic value	8	4																2.41	0.86	2.41	0.86	0.00
Student	TO	Mathematics	Intrinsic value	11	8																				
Student	TO	Verbal: German	Enjoyment of reading	5	1	3.10	0.79	3.10	0.79	0.00	3.11	0.78	3.11	0.78	0.01	3.12	0.77	3.12	0.76	0.01	3.13	0.76	3.14	0.75	0.01
Student	TO	Verbal: German	Enjoyment of reading	6	2						2.88	0.83	2.88	0.83	0.00	2.88	0.83	2.88	0.83	0.00	2.90	0.82	2.90	0.82	0.01
Student	TO	Verbal: German	Enjoyment of reading	7	3											2.75	0.83	2.75	0.83	0.01	2.76	0.82	2.77	0.82	0.01
Student	TO	Verbal: German	Enjoyment of reading	8	4																2.70	0.75	2.71	0.75	0.01
Student	TO	Verbal: German	Enjoyment of reading	9	5																				
Student	TO	Verbal: German	Enjoyment of reading	9	6																				
Student	TO	Verbal: German	Interest	6	2						2.31	0.71	2.31	0.71	0.00	2.30	0.71	2.30	0.71	0.00	2.31	0.71	2.31	0.71	0.00
Student	TO	Verbal: German	Interest	9	6																				
Student	TO	Verbal: German	Intrinsic value	8	4																2.24	0.66	2.24	0.66	0.00
Student	TO	Verbal: German	Intrinsic value	11	8																				
Parent	SO	General	Big Five: Conscientiousness	7	3											5.82	1.99	5.82	1.98	0.00	5.86	1.96	5.88	1.95	0.01
Parent	SO	General	Big Five: Conscientiousness	9	6																				
Parent	SO	General	Big Five: Neuroticism	7	3											3.47	1.81	3.46	1.81	-0.01	3.47	1.79	3.46	1.78	0.00
Parent	SO	General	Big Five: Neuroticism	9	6																				
Parent	OO	General	Big Five: Agreeableness	7	3											5.97	1.84	5.97	1.83	0.00	6.02	1.82	6.03	1.80	0.01
Parent	OO	General	Big Five: Agreeableness	9	6																				
Parent	OO	General	Big Five: Extraversion	7	3											7.31	1.92	7.31	1.92	0.00	7.32	1.90	7.31	1.89	0.00
Parent	OO	General	Big Five: Extraversion	9	6																				
Parent	OO	General	SDQ: Problem behavior	6	2						1.50	1.60	1.50	1.59	0.00	1.47	1.57	1.44	1.55	-0.02	1.45	1.54	1.43	1.54	-0.01
Parent	OO	General	SDQ: Problem behavior	9	6																				
Parent	OO	General	SDQ: Prosocial behavior	6	2						8.66	1.35	8.66	1.36	0.00	8.68	1.35	8.68	1.35	0.00	8.69	1.34	8.69	1.34	0.00
Parent	OO	General	SDQ: Prosocial behavior	9	6																				
Parent	OO	School	Social integration	6	2						3.44	0.53	3.44	0.53	0.00	3.46	0.52	3.47	0.52	0.01	3.47	0.51	3.47	0.51	0.01
Parent	OO	School	Social integration	7	3											3.45	0.54	3.45	0.54	0.00	3.45	0.53	3.45	0.53	0.00
Parent	OO	School	Social integration	8	4																3.40	0.54	3.40	0.54	-0.01
Parent	TO	General	Big Five: Openness	7	3											7.27	1.67	7.29	1.66	0.01	7.30	1.65	7.33	1.64	0.01
Parent	TO	General	Big Five: Openness	9	6																				

(Table continues)

Table A1.5 *(continued)*

						TBS M	TBS SD	AS M	AS SD	d	TBS M	TBS SD	AS M	AS SD	d	TBS M	TBS SD	AS M	AS SD	d	TBS M	TBS SD	AS M	AS SD	d
Parent	TO	School	Autonomy	6	2						3.26	0.56	3.26	0.56	0.00	3.28	0.54	3.29	0.54	0.02	3.28	0.55	3.29	0.54	0.02
Parent	TO	School	Autonomy	7	3											3.32	0.53	3.32	0.53	0.01	3.33	0.52	3.34	0.51	0.01
Parent	TO	School	Autonomy	8	4																3.36	0.50	3.37	0.50	0.01
			Age			130.49	6.29	130.46	6.27	0.00	130.31	6.05	130.28	6.03	0.00	130.58	6.31	130.56	6.29	0.00	130.46	6.23	130.40	6.17	-0.01
			Gender			0.48	0.50	0.48	0.50	0.00	0.48	0.50	0.49	0.50	0.00	0.48	0.50	0.49	0.50	0.01	0.49	0.50	0.50	0.50	0.02
			Migration background			0.23	0.42	0.23	0.42	0.00	0.23	0.42	0.23	0.42	0.00	0.22	0.41	0.21	0.41	0.00	0.21	0.41	0.20	0.40	-0.01
			HISEI			56.76	20.09	56.79	20.08	0.00	57.16	19.89	57.23	19.86	0.00	56.99	19.95	57.18	19.89	0.01	57.22	19.88	57.56	19.79	0.02
			Educational attainment			14.52	2.40	14.52	2.40	0.00	14.59	2.37	14.59	2.37	0.00	14.56	2.36	14.58	2.35	0.01	14.59	2.34	14.63	2.34	0.02

Note. The effect size Cohen's *d* (effect size in *SD* units) indicates the selectivity of the analysis sample for each grade as used in the present paper. A positive value of *d* implies that the value of a certain measure was larger in the total base sample compared to the analysis sample. A negative value of *d* implies that the value of a certain measure was smaller in the total base sample compared to the analysis sample. TBS = Total base sample. AS = Analysis sample. SO = Self-orientation. OO = Other-orientation. TO = Task-orientation. HISEI = Highest International Socio-Economic Index of Occupational Status (Ganzeboom & Treiman, 1996).

Table A1.6

Estimates of Sample Selectivity for NEPS-SC3 (Grades 9 to 10)

Method	Domain	Context	Measure	Grade	Wave	Grade 9/1					Grade 9/2					Grade 10				
						TBS N = 4,898		AS N = 4,559			TBS N = 4,627		AS N = 4,271			TBS N = 4,011		AS N = 3,446		
						M	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*
Student	SO	General	Big Five: Conscientiousness	7	3	3.25	0.85	3.27	0.85	0.02	3.25	0.85	3.27	0.85	0.02	3.26	0.85	3.29	0.84	0.03
Student	SO	General	Big Five: Conscientiousness	9	5	3.05	0.83	3.06	0.83	0.02	3.05	0.83	3.07	0.83	0.02	3.04	0.82	3.07	0.82	0.03
Student	SO	General	Big Five: Neuroticism	7	3	2.82	0.83	2.82	0.83	0.00	2.82	0.83	2.82	0.83	0.00	2.83	0.82	2.83	0.81	0.00
Student	SO	General	Big Five: Neuroticism	9	5	2.84	0.86	2.85	0.86	0.00	2.84	0.86	2.84	0.86	0.00	2.86	0.85	2.86	0.85	0.00
Student	SO	General	Self-esteem	5	1	39.96	6.57	40.03	6.54	0.01	40.00	6.56	40.05	6.55	0.01	40.19	6.48	40.18	6.51	0.00
Student	SO	General	Self-esteem	9	5	37.77	7.34	37.86	7.33	0.01	37.87	7.26	37.97	7.24	0.01	37.81	7.25	37.94	7.20	0.02
Student	SO	General	Self-esteem	12	9															
Student	SO	School	Academic self-concept	5	1	3.21	0.56	3.22	0.55	0.02	3.22	0.57	3.23	0.56	0.02	3.22	0.55	3.22	0.54	0.01
Student	SO	School	Academic self-concept	9	5	2.90	0.58	2.91	0.58	0.02	2.90	0.58	2.91	0.58	0.02	2.92	0.57	2.93	0.57	0.02
Student	SO	School	Academic self-concept	12	9															
Student	SO	Mathematics	Helplessness	7	3	1.67	0.69	1.65	0.68	-0.02	1.67	0.69	1.65	0.68	-0.03	1.65	0.67	1.63	0.66	-0.02
Student	SO	Mathematics	Helplessness	9	6						1.73	0.72	1.73	0.73	-0.01	1.71	0.71	1.71	0.71	0.00
Student	SO	Mathematics	Self-concept	5	1	2.98	0.83	2.99	0.83	0.02	2.99	0.83	3.00	0.83	0.01	3.00	0.82	3.01	0.82	0.01
Student	SO	Mathematics	Self-concept	9	5	2.52	0.90	2.53	0.91	0.01	2.53	0.90	2.54	0.91	0.01	2.53	0.90	2.54	0.90	0.01
Student	SO	Mathematics	Self-efficacy	7	3	2.86	0.72	2.87	0.72	0.02	2.86	0.72	2.88	0.72	0.02	2.87	0.72	2.88	0.71	0.01
Student	SO	Mathematics	self-concept	12	9															
Student	SO	Verbal: German	Helplessness	7	3	1.74	0.64	1.72	0.63	-0.02	1.74	0.64	1.73	0.64	-0.03	1.72	0.62	1.70	0.62	-0.02
Student	SO	Verbal: German	Helplessness	9	6						1.72	0.62	1.72	0.62	-0.01	1.71	0.62	1.70	0.62	0.00
Student	SO	Verbal: German	Reading self-concept	5	1	3.10	0.71	3.12	0.70	0.02	3.10	0.71	3.11	0.70	0.02	3.11	0.70	3.13	0.69	0.02
Student	SO	Verbal: German	Reading self-concept	7	3	3.06	0.66	3.07	0.65	0.01	3.05	0.66	3.07	0.65	0.02	3.07	0.64	3.08	0.64	0.01
Student	SO	Verbal: German	Reading self-concept	8	4	3.13	0.67	3.14	0.67	0.02	3.13	0.67	3.14	0.66	0.02	3.15	0.65	3.15	0.65	0.01
Student	SO	Verbal: German	Reading self-concept	9	6						2.98	0.64	2.99	0.64	0.01	2.99	0.64	2.99	0.64	0.00
Student	SO	Verbal: German	Self-concept	5	1	3.05	0.63	3.06	0.63	0.01	3.05	0.63	3.07	0.63	0.02	3.06	0.63	3.07	0.62	0.01
Student	SO	Verbal: German	Self-concept	9	5	2.96	0.61	2.97	0.61	0.01	2.97	0.61	2.97	0.61	0.00	2.98	0.60	2.98	0.60	0.00
Student	SO	Verbal: German	Self-concept	12	9															
Student	OO	General	Big Five: Agreeableness	7	3	3.46	0.65	3.48	0.64	0.02	3.46	0.65	3.47	0.65	0.02	3.47	0.64	3.48	0.64	0.02
Student	OO	General	Big Five: Agreeableness	9	5	3.43	0.64	3.44	0.64	0.00	3.43	0.64	3.43	0.64	0.00	3.44	0.63	3.44	0.63	0.00
Student	OO	General	Big Five: Extraversion	7	3	3.40	0.78	3.40	0.78	0.00	3.40	0.78	3.40	0.78	0.00	3.41	0.78	3.41	0.78	0.00
Student	OO	General	Big Five: Extraversion	9	5	3.30	0.85	3.30	0.85	0.00	3.30	0.85	3.30	0.85	0.00	3.30	0.85	3.31	0.85	0.01
Student	OO	General	ICQ: Ability to deal with conflict	12	9															
Student	OO	General	ICQ: Assertiveness	12	9															

(Table continues)

Table A1.6 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Grade 9/1 TBS N = 4,898 M	SD	Grade 9/1 AS N = 4,559 M	SD	d	Grade 9/2 TBS N = 4,627 M	SD	Grade 9/2 AS N = 4,271 M	SD	d	Grade 10 TBS N = 4,011 M	SD	Grade 10 AS N = 3,446 M	SD	d
Student	OO	General	SDQ: Problem behavior	6	2	2.32	1.83	2.30	1.83	-0.01	2.31	1.82	2.28	1.82	-0.02	2.29	1.80	2.26	1.80	-0.02
Student	OO	General	SDQ: Problem behavior	9	6						2.36	1.72	2.36	1.72	0.00	2.31	1.70	2.31	1.71	0.00
Student	OO	General	SDQ: Prosocial behavior	6	2	7.38	1.90	7.40	1.91	0.01	7.38	1.90	7.41	1.91	0.02	7.41	1.89	7.44	1.88	0.02
Student	OO	General	SDQ: Prosocial behavior	9	6						7.58	1.85	7.60	1.84	0.01	7.62	1.81	7.65	1.78	0.01
Student	TO	General	Big Five: Openness	7	3	3.45	0.96	3.46	0.96	0.01	3.45	0.96	3.46	0.96	0.01	3.46	0.96	3.48	0.96	0.01
Student	TO	General	Big Five: Openness	9	5	3.36	0.95	3.37	0.96	0.00	3.36	0.95	3.36	0.95	0.00	3.36	0.95	3.37	0.95	0.00
Student	TO	General	RIASEC: Artistic interests (IILS)	6	2	3.12	1.02	3.12	1.02	0.00	3.13	1.02	3.13	1.03	0.00	3.13	1.01	3.14	1.01	0.01
Student	TO	General	RIASEC: Artistic interests (IILS)	9	6						2.47	1.01	2.48	1.02	0.00	2.47	1.01	2.48	1.02	0.01
Student	TO	General	RIASEC: Artistic interests (IILS)	12	9															
Student	TO	General	RIASEC: Conventional interests (IILS)	6	2	2.32	0.87	2.31	0.87	-0.01	2.32	0.87	2.31	0.87	-0.01	2.32	0.86	2.32	0.85	0.00
Student	TO	General	RIASEC: Conventional interests (IILS)	9	6						2.54	0.83	2.54	0.83	0.00	2.53	0.83	2.55	0.84	0.01
Student	TO	General	RIASEC: Conventional interests (IILS)	12	9															
Student	TO	General	RIASEC: Enterprising interests (IILS)	6	2	2.82	0.94	2.82	0.95	0.00	2.82	0.95	2.81	0.95	-0.01	2.81	0.94	2.80	0.94	-0.01
Student	TO	General	RIASEC: Enterprising interests (IILS)	9	6						2.95	0.79	2.95	0.79	0.00	2.94	0.78	2.95	0.78	0.01
Student	TO	General	RIASEC: Enterprising interests (IILS)	12	9															
Student	TO	General	RIASEC: Investigative interests (IILS)	6	2	3.10	1.00	3.11	1.00	0.01	3.09	1.00	3.10	1.00	0.01	3.11	1.00	3.11	1.01	0.00
Student	TO	General	RIASEC: Investigative interests (IILS)	9	6						2.80	0.97	2.80	0.97	0.00	2.80	0.97	2.80	0.97	0.00
Student	TO	General	RIASEC: Investigative interests (IILS)	12	9															
Student	TO	General	RIASEC: Realistic interests (IILS)	6	2	2.96	1.07	2.97	1.08	0.00	2.97	1.08	2.98	1.08	0.00	2.98	1.08	2.98	1.08	0.00
Student	TO	General	RIASEC: Realistic interests (IILS)	9	6						2.85	1.00	2.85	1.00	0.00	2.85	0.99	2.86	1.00	0.01
Student	TO	General	RIASEC: Realistic interests (IILS)	12	9															
Student	TO	General	RIASEC: Social interests (IILS)	6	2	3.41	0.90	3.42	0.90	0.01	3.40	0.90	3.41	0.90	0.01	3.41	0.90	3.42	0.89	0.02
Student	TO	General	RIASEC: Social interests (IILS)	9	6						3.09	0.90	3.09	0.91	0.00	3.08	0.90	3.09	0.90	0.00
Student	TO	General	RIASEC: Social interests (IILS)	12	9															
Student	TO	General	TenFlex: Flexibility	10	7											15.89	3.31	15.85	3.31	-0.01
Student	TO	General	TenFlex: Persistence	10	7											18.13	3.01	18.15	3.00	0.01
Student	TO	School	Achievement-related learning motivation	8	4	3.23	0.58	3.24	0.57	0.03	3.23	0.58	3.24	0.57	0.03	3.22	0.58	3.24	0.58	0.03
Student	TO	School	Achievement-related learning motivation	11	8															
Student	TO	School	Competitive learning motivation	8	4	2.25	0.74	2.26	0.75	0.00	2.26	0.75	2.27	0.75	0.00	2.24	0.74	2.25	0.74	0.02
Student	TO	School	Competitive learning motivation	11	8															
Student	TO	School	Job-related learning motivation	8	4	3.51	0.51	3.52	0.50	0.02	3.50	0.51	3.52	0.51	0.03	3.51	0.51	3.53	0.50	0.03
Student	TO	School	Job-related learning motivation	11	8															

(Table continues)

Table A1.6 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Grade 9/1					Grade 9/2					Grade 10				
						TBS N = 4,898		AS N = 4,559			TBS N = 4,627		AS N = 4,271			TBS N = 4,011		AS N = 3,446		
						M	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*
Student	TO	Mathematics	Interest	6	2	2.19	0.77	2.19	0.77	0.00	2.19	0.77	2.20	0.77	0.01	2.19	0.76	2.19	0.77	0.01
Student	TO	Mathematics	Interest	9	6						2.11	0.80	2.11	0.80	0.00	2.10	0.80	2.11	0.80	0.00
Student	TO	Mathematics	Intrinsic value	8	4	2.42	0.86	2.43	0.86	0.01	2.43	0.87	2.44	0.87	0.01	2.41	0.86	2.42	0.86	0.01
Student	TO	Mathematics	Intrinsic value	11	8															
Student	TO	Verbal: German	Enjoyment of reading	5	1	3.13	0.76	3.14	0.75	0.01	3.13	0.76	3.14	0.76	0.01	3.15	0.75	3.16	0.74	0.01
Student	TO	Verbal: German	Enjoyment of reading	6	2	2.90	0.82	2.91	0.83	0.01	2.90	0.83	2.91	0.83	0.01	2.92	0.81	2.92	0.81	0.00
Student	TO	Verbal: German	Enjoyment of reading	7	3	2.77	0.82	2.78	0.81	0.02	2.76	0.82	2.77	0.81	0.02	2.78	0.81	2.79	0.80	0.02
Student	TO	Verbal: German	Enjoyment of reading	8	4	2.72	0.75	2.74	0.75	0.02	2.71	0.75	2.73	0.75	0.02	2.73	0.74	2.74	0.73	0.02
Student	TO	Verbal: German	Enjoyment of reading	9	5	2.72	0.79	2.73	0.79	0.02	2.71	0.79	2.72	0.79	0.02	2.74	0.78	2.75	0.78	0.01
Student	TO	Verbal: German	Enjoyment of reading	9	6						2.52	0.90	2.53	0.90	0.02	2.54	0.89	2.55	0.89	0.01
Student	TO	Verbal: German	Interest	6	2	2.31	0.71	2.32	0.71	0.00	2.31	0.72	2.32	0.72	0.01	2.31	0.71	2.32	0.71	0.00
Student	TO	Verbal: German	Interest	9	6						2.14	0.79	2.15	0.79	0.01	2.14	0.78	2.14	0.79	0.01
Student	TO	Verbal: German	Intrinsic value	8	4	2.24	0.66	2.24	0.66	0.00	2.24	0.66	2.24	0.66	0.00	2.23	0.65	2.24	0.65	0.01
Student	TO	Verbal: German	Intrinsic value	11	8															
Parent	SO	General	Big Five: Conscientiousness	7	3	5.90	1.94	5.94	1.91	0.02	5.90	1.93	5.94	1.90	0.02	5.94	1.93	5.99	1.90	0.02
Parent	SO	General	Big Five: Conscientiousness	9	6						5.94	1.85	5.98	1.82	0.03	6.01	1.84	6.04	1.81	0.02
Parent	SO	General	Big Five: Neuroticism	7	3	3.47	1.80	3.46	1.79	-0.01	3.47	1.80	3.46	1.79	-0.01	3.45	1.76	3.42	1.76	-0.02
Parent	SO	General	Big Five: Neuroticism	9	6						3.29	1.79	3.28	1.78	0.00	3.27	1.76	3.25	1.75	-0.01
Parent	OO	General	Big Five: Agreeableness	7	3	6.05	1.82	6.06	1.81	0.01	6.01	1.82	6.04	1.80	0.02	6.08	1.79	6.09	1.80	0.01
Parent	OO	General	Big Five: Agreeableness	9	6						6.08	1.73	6.09	1.72	0.01	6.12	1.72	6.12	1.71	0.00
Parent	OO	General	Big Five: Extraversion	7	3	7.32	1.89	7.31	1.89	-0.01	7.32	1.88	7.31	1.88	-0.01	7.36	1.87	7.36	1.87	0.00
Parent	OO	General	Big Five: Extraversion	9	6						7.13	1.90	7.16	1.88	0.01	7.16	1.88	7.20	1.86	0.02
Parent	OO	General	SDQ: Problem behavior	6	2	1.44	1.53	1.41	1.53	-0.01	1.43	1.55	1.41	1.54	-0.02	1.41	1.53	1.38	1.51	-0.02
Parent	OO	General	SDQ: Problem behavior	9	6						1.53	1.51	1.52	1.52	0.00	1.50	1.52	1.49	1.51	-0.01
Parent	OO	General	SDQ: Prosocial behavior	6	2	8.70	1.32	8.69	1.34	-0.01	8.69	1.33	8.68	1.34	0.00	8.70	1.33	8.69	1.34	-0.01
Parent	OO	General	SDQ: Prosocial behavior	9	6						8.47	1.43	8.49	1.43	0.01	8.48	1.40	8.50	1.39	0.01
Parent	OO	School	Social integration	6	2	3.47	0.51	3.48	0.51	0.01	3.47	0.52	3.48	0.51	0.01	3.48	0.51	3.48	0.51	0.01
Parent	OO	School	Social integration	7	3	3.46	0.53	3.46	0.53	0.00	3.46	0.53	3.46	0.53	0.00	3.46	0.53	3.46	0.53	0.01
Parent	OO	School	Social integration	8	4	3.41	0.54	3.41	0.53	0.00	3.40	0.54	3.41	0.53	0.00	3.41	0.54	3.41	0.53	0.00
Parent	TO	General	Big Five: Openness	7	3	7.35	1.62	7.38	1.61	0.02	7.33	1.64	7.35	1.62	0.02	7.39	1.60	7.42	1.57	0.02
Parent	TO	General	Big Five: Openness	9	6						7.39	1.63	7.41	1.61	0.02	7.47	1.59	7.48	1.57	0.01

(Table continues)

Table A1.6 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Grade 9/1					Grade 9/2					Grade 10				
						TBS N = 4,898		AS N = 4,559			TBS N = 4,627		AS N = 4,271			TBS N = 4,011		AS N = 3,446		
						M	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*
Parent	TO	School	Autonomy	6	2	3.29	0.54	3.31	0.53	0.03	3.29	0.54	3.30	0.54	0.03	3.31	0.53	3.32	0.51	0.03
Parent	TO	School	Autonomy	7	3	3.34	0.51	3.35	0.50	0.02	3.34	0.51	3.35	0.51	0.02	3.35	0.50	3.37	0.48	0.04
Parent	TO	School	Autonomy	8	4	3.38	0.49	3.39	0.48	0.03	3.38	0.49	3.39	0.48	0.03	3.39	0.48	3.41	0.46	0.03
			Age			130.34	6.08	130.27	6.05	-0.01	130.39	6.11	130.32	6.07	-0.01	130.11	5.80	130.15	5.79	0.01
			Gender			0.50	0.50	0.51	0.50	0.02	0.49	0.50	0.50	0.50	0.02	0.50	0.50	0.51	0.50	0.02
			Migration background			0.21	0.40	0.20	0.40	-0.01	0.21	0.40	0.20	0.40	-0.01	0.19	0.39	0.18	0.39	-0.02
			HISEI			57.33	19.85	57.62	19.81	0.01	57.13	19.89	57.53	19.83	0.02	57.94	19.53	58.21	19.47	0.01
			Educational attainment			14.61	2.34	14.65	2.34	0.02	14.62	2.34	14.66	2.34	0.02	14.70	2.29	14.75	2.28	0.02

Note. The effect size Cohen's *d* (effect size in *SD* units) indicates the selectivity of the analysis sample for each grade as used in the present paper. A positive value of *d* implies that the value of a certain measure was larger in the total base sample compared to the analysis sample. A negative value of *d* implies that the value of a certain measure was smaller in the total base sample compared to the analysis sample. TBS = Total base sample. AS = Analysis sample. SO = Self-orientation. OO = Other-orientation. TO = Task-orientation. HISEI = Highest International Socio-Economic Index of Occupational Status (Ganzeboom & Treiman, 1996).

Table A1.7

Estimates of Sample Selectivity for NEPS-SC3 (Grades 11 to 12)

Method	Domain	Context	Measure	Grade	Wave	Grade 11					Grade 12				
						TBS N = 1,943		AS N = 1,846			TBS N = 1,786		AS N = 1,642		
						M	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*
Student	SO	General	Big Five: Conscientiousness	7	3	3.30	0.84	3.32	0.83	0.02	3.30	0.84	3.32	0.83	0.02
Student	SO	General	Big Five: Conscientiousness	9	5	3.01	0.83	3.03	0.83	0.02	3.02	0.83	3.04	0.83	0.02
Student	SO	General	Big Five: Neuroticism	7	3	2.78	0.81	2.78	0.81	0.00	2.78	0.80	2.79	0.80	0.01
Student	SO	General	Big Five: Neuroticism	9	5	2.82	0.87	2.82	0.87	0.00	2.82	0.87	2.83	0.86	0.01
Student	SO	General	Self-esteem	5	1	41.08	6.18	41.12	6.16	0.01	41.19	6.06	41.29	5.99	0.02
Student	SO	General	Self-esteem	9	5	38.66	7.19	38.75	7.14	0.01	38.71	7.08	38.81	7.01	0.01
Student	SO	General	Self-esteem	12	9						38.12	7.46	38.14	7.40	0.00
Student	SO	School	Academic self-concept	5	1	3.29	0.52	3.30	0.51	0.02	3.29	0.52	3.30	0.51	0.02
Student	SO	School	Academic self-concept	9	5	2.99	0.56	3.00	0.56	0.03	2.99	0.56	3.02	0.56	0.04
Student	SO	School	Academic self-concept	12	9						2.98	0.63	3.00	0.63	0.03
Student	SO	Mathematics	Helplessness	7	3	1.54	0.62	1.53	0.61	-0.01	1.54	0.62	1.53	0.61	-0.01
Student	SO	Mathematics	Helplessness	9	6	1.65	0.69	1.64	0.68	-0.02	1.64	0.68	1.63	0.67	-0.01
Student	SO	Mathematics	Self-concept	5	1	3.09	0.78	3.10	0.77	0.01	3.09	0.78	3.09	0.77	0.00
Student	SO	Mathematics	Self-concept	9	5	2.60	0.92	2.62	0.92	0.03	2.60	0.92	2.62	0.91	0.02
Student	SO	Mathematics	Self-efficacy	7	3	2.94	0.71	2.95	0.71	0.02	2.93	0.70	2.94	0.70	0.01
Student	SO	Mathematics	self-concept	12	9						2.48	1.01	2.50	1.01	0.02
Student	SO	Verbal: German	Helplessness	7	3	1.60	0.56	1.59	0.56	-0.02	1.60	0.55	1.59	0.54	-0.03
Student	SO	Verbal: German	Helplessness	9	6	1.62	0.57	1.62	0.57	0.00	1.63	0.58	1.62	0.57	-0.01
Student	SO	Verbal: German	Reading self-concept	5	1	3.28	0.61	3.29	0.60	0.01	3.29	0.61	3.30	0.60	0.02
Student	SO	Verbal: German	Reading self-concept	7	3	3.19	0.61	3.20	0.60	0.01	3.19	0.61	3.19	0.60	0.00
Student	SO	Verbal: German	Reading self-concept	8	4	3.28	0.61	3.28	0.60	0.00	3.26	0.61	3.27	0.61	0.00
Student	SO	Verbal: German	Reading self-concept	9	6	3.06	0.62	3.07	0.62	0.00	3.06	0.62	3.06	0.62	0.00
Student	SO	Verbal: German	Self-concept	5	1	3.18	0.59	3.19	0.58	0.02	3.17	0.59	3.19	0.59	0.03
Student	SO	Verbal: German	Self-concept	9	5	3.09	0.59	3.09	0.59	0.01	3.09	0.59	3.10	0.59	0.02
Student	SO	Verbal: German	Self-concept	12	9						2.92	0.73	2.93	0.73	0.02
Student	OO	General	Big Five: Agreeableness	7	3	3.47	0.63	3.47	0.63	0.01	3.47	0.63	3.47	0.63	0.01
Student	OO	General	Big Five: Agreeableness	9	5	3.43	0.64	3.43	0.64	0.01	3.43	0.65	3.43	0.65	0.01
Student	OO	General	Big Five: Extraversion	7	3	3.46	0.77	3.46	0.77	0.00	3.46	0.77	3.46	0.77	0.00
Student	OO	General	Big Five: Extraversion	9	5	3.35	0.88	3.35	0.88	0.00	3.34	0.89	3.34	0.88	-0.01
Student	OO	General	ICQ: Ability to deal with conflict	12	9						3.58	0.65	3.58	0.65	0.00
Student	OO	General	ICQ: Assertiveness	12	9						3.56	0.68	3.54	0.67	-0.02

(Table continues)

Table A1.7 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Grade 11					Grade 12				
						TBS N = 1,943		AS N = 1,846			TBS N = 1,786		AS N = 1,642		
						M	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*
Student	OO	General	SDQ: Problem behavior	6	2	2.06	1.71	2.04	1.70	-0.01	2.06	1.71	2.04	1.71	-0.01
Student	OO	General	SDQ: Problem behavior	9	6	2.12	1.62	2.11	1.62	0.00	2.10	1.58	2.09	1.58	-0.01
Student	OO	General	SDQ: Prosocial behavior	6	2	7.48	1.85	7.48	1.85	0.00	7.48	1.84	7.48	1.84	0.00
Student	OO	General	SDQ: Prosocial behavior	9	6	7.70	1.75	7.71	1.73	0.00	7.70	1.75	7.71	1.73	0.00
Student	TO	General	Big Five: Openness	7	3	3.52	0.96	3.53	0.96	0.00	3.55	0.95	3.55	0.95	0.00
Student	TO	General	Big Five: Openness	9	5	3.41	0.99	3.41	0.99	0.00	3.43	0.98	3.42	0.98	0.00
Student	TO	General	RIASEC: Artistic interests (IILS)	6	2	3.14	0.99	3.14	0.99	0.00	3.17	0.98	3.17	0.98	0.00
Student	TO	General	RIASEC: Artistic interests (IILS)	9	6	2.51	1.03	2.52	1.03	0.01	2.53	1.02	2.54	1.02	0.01
Student	TO	General	RIASEC: Artistic interests (IILS)	12	9						2.64	1.05	2.64	1.05	0.00
Student	TO	General	RIASEC: Conventional interests (IILS)	6	2	2.33	0.86	2.33	0.85	0.00	2.33	0.86	2.33	0.86	0.00
Student	TO	General	RIASEC: Conventional interests (IILS)	9	6	2.47	0.82	2.47	0.82	0.00	2.46	0.82	2.46	0.82	0.00
Student	TO	General	RIASEC: Conventional interests (IILS)	12	9						2.70	0.84	2.69	0.84	0.00
Student	TO	General	RIASEC: Enterprising interests (IILS)	6	2	2.78	0.92	2.77	0.92	-0.01	2.79	0.93	2.77	0.92	-0.02
Student	TO	General	RIASEC: Enterprising interests (IILS)	9	6	2.94	0.78	2.94	0.78	0.00	2.92	0.79	2.92	0.78	0.00
Student	TO	General	RIASEC: Enterprising interests (IILS)	12	9						3.17	0.83	3.16	0.83	-0.01
Student	TO	General	RIASEC: Investigative interests (IILS)	6	2	3.20	0.96	3.19	0.96	-0.01	3.21	0.96	3.19	0.96	-0.01
Student	TO	General	RIASEC: Investigative interests (IILS)	9	6	2.85	0.97	2.85	0.97	0.00	2.86	0.97	2.85	0.97	0.00
Student	TO	General	RIASEC: Investigative interests (IILS)	12	9						2.89	0.95	2.89	0.95	0.00
Student	TO	General	RIASEC: Realistic interests (IILS)	6	2	2.95	1.04	2.93	1.03	-0.01	2.94	1.03	2.92	1.03	-0.02
Student	TO	General	RIASEC: Realistic interests (IILS)	9	6	2.85	0.96	2.85	0.96	0.00	2.85	0.97	2.85	0.97	0.00
Student	TO	General	RIASEC: Realistic interests (IILS)	12	9						2.93	0.94	2.93	0.94	-0.01
Student	TO	General	RIASEC: Social interests (IILS)	6	2	3.43	0.86	3.42	0.86	0.00	3.43	0.86	3.43	0.87	0.00
Student	TO	General	RIASEC: Social interests (IILS)	9	6	3.09	0.86	3.10	0.86	0.01	3.08	0.86	3.09	0.85	0.01
Student	TO	General	RIASEC: Social interests (IILS)	12	9						3.20	0.93	3.19	0.92	-0.01
Student	TO	General	TenFlex: Flexibility	10	7	15.77	3.42	15.76	3.43	0.00	15.82	3.42	15.81	3.44	0.00
Student	TO	General	TenFlex: Persistence	10	7	18.08	3.01	18.08	3.01	0.00	18.03	2.99	18.04	3.01	0.00
Student	TO	School	Achievement-related learning motivation	8	4	3.23	0.57	3.23	0.57	0.01	3.23	0.57	3.23	0.57	0.01
Student	TO	School	Achievement-related learning motivation	11	8	3.10	0.58	3.11	0.58	0.02	3.11	0.58	3.12	0.57	0.02
Student	TO	School	Competitive learning motivation	8	4	2.19	0.74	2.20	0.74	0.01	2.19	0.73	2.18	0.73	-0.01
Student	TO	School	Competitive learning motivation	11	8	2.20	0.72	2.21	0.72	0.01	2.19	0.71	2.21	0.71	0.02
Student	TO	School	Job-related learning motivation	8	4	3.54	0.50	3.55	0.49	0.01	3.53	0.50	3.54	0.50	0.02
Student	TO	School	Job-related learning motivation	11	8	3.49	0.55	3.50	0.55	0.00	3.49	0.55	3.49	0.55	0.00

(Table continues)

Table A1.7 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Grade 11					Grade 12				
						TBS		AS			TBS		AS		
						N = 1,943		N = 1,846			N = 1,786		N = 1,642		
						M	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*
Student	TO	Mathematics	Interest	6	2	2.21	0.78	2.22	0.78	0.00	2.21	0.78	2.21	0.78	0.00
Student	TO	Mathematics	Interest	9	6	2.04	0.81	2.06	0.81	0.02	2.05	0.82	2.06	0.81	0.01
Student	TO	Mathematics	Intrinsic value	8	4	2.37	0.87	2.38	0.88	0.01	2.38	0.88	2.39	0.87	0.01
Student	TO	Mathematics	Intrinsic value	11	8	2.30	0.91	2.32	0.91	0.02	2.32	0.92	2.34	0.92	0.02
Student	TO	Verbal: German	Enjoyment of reading	5	1	3.28	0.66	3.28	0.66	0.00	3.28	0.65	3.28	0.64	0.00
Student	TO	Verbal: German	Enjoyment of reading	6	2	3.07	0.76	3.07	0.76	0.00	3.07	0.75	3.08	0.75	0.01
Student	TO	Verbal: German	Enjoyment of reading	7	3	2.96	0.74	2.97	0.74	0.01	2.98	0.73	2.98	0.73	0.01
Student	TO	Verbal: German	Enjoyment of reading	8	4	2.90	0.71	2.91	0.70	0.01	2.92	0.70	2.92	0.70	0.01
Student	TO	Verbal: German	Enjoyment of reading	9	5	2.92	0.72	2.93	0.72	0.01	2.93	0.72	2.94	0.71	0.02
Student	TO	Verbal: German	Enjoyment of reading	9	6	2.75	0.85	2.76	0.84	0.01	2.77	0.84	2.78	0.83	0.01
Student	TO	Verbal: German	Interest	6	2	2.39	0.70	2.39	0.70	0.00	2.38	0.69	2.38	0.69	0.01
Student	TO	Verbal: German	Interest	9	6	2.19	0.83	2.20	0.83	0.02	2.20	0.82	2.20	0.83	0.01
Student	TO	Verbal: German	Intrinsic value	8	4	2.23	0.66	2.24	0.66	0.00	2.23	0.66	2.23	0.66	0.00
Student	TO	Verbal: German	Intrinsic value	11	8	2.12	0.76	2.12	0.76	0.00	2.12	0.75	2.12	0.75	0.01
Parent	SO	General	Big Five: Conscientiousness	7	3	6.22	1.82	6.26	1.79	0.02	6.25	1.79	6.30	1.75	0.03
Parent	SO	General	Big Five: Conscientiousness	9	6	6.21	1.76	6.25	1.73	0.02	6.27	1.74	6.33	1.69	0.03
Parent	SO	General	Big Five: Neuroticism	7	3	3.34	1.70	3.33	1.70	0.00	3.31	1.68	3.32	1.69	0.00
Parent	SO	General	Big Five: Neuroticism	9	6	3.20	1.73	3.20	1.73	0.00	3.18	1.71	3.17	1.70	0.00
Parent	OO	General	Big Five: Agreeableness	7	3	6.16	1.72	6.16	1.72	0.00	6.15	1.70	6.13	1.70	-0.01
Parent	OO	General	Big Five: Agreeableness	9	6	6.17	1.68	6.18	1.68	0.00	6.17	1.68	6.16	1.68	-0.01
Parent	OO	General	Big Five: Extraversion	7	3	7.31	1.83	7.29	1.83	-0.01	7.30	1.80	7.29	1.79	-0.01
Parent	OO	General	Big Five: Extraversion	9	6	7.11	1.88	7.10	1.87	0.00	7.08	1.88	7.09	1.87	0.00
Parent	OO	General	SDQ: Problem behavior	6	2	1.28	1.43	1.26	1.40	-0.02	1.27	1.44	1.25	1.42	-0.01
Parent	OO	General	SDQ: Problem behavior	9	6	1.34	1.39	1.33	1.39	-0.01	1.32	1.35	1.30	1.35	-0.01
Parent	OO	General	SDQ: Prosocial behavior	6	2	8.69	1.35	8.70	1.35	0.01	8.66	1.37	8.67	1.37	0.01
Parent	OO	General	SDQ: Prosocial behavior	9	6	8.46	1.42	8.46	1.43	0.00	8.43	1.42	8.45	1.41	0.01
Parent	OO	School	Social integration	6	2	3.51	0.47	3.51	0.47	0.01	3.49	0.48	3.50	0.48	0.02
Parent	OO	School	Social integration	7	3	3.49	0.50	3.49	0.50	0.00	3.49	0.50	3.50	0.50	0.01
Parent	OO	School	Social integration	8	4	3.44	0.51	3.44	0.51	0.01	3.43	0.51	3.44	0.51	0.01
Parent	TO	General	Big Five: Openness	7	3	7.76	1.40	7.78	1.39	0.02	7.76	1.39	7.79	1.37	0.02
Parent	TO	General	Big Five: Openness	9	6	7.74	1.43	7.76	1.42	0.01	7.77	1.40	7.79	1.38	0.02

(Table continues)

Table A1.7 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Grade 11					Grade 12				
						TBS N = 1,943		AS N = 1,846			TBS N = 1,786		AS N = 1,642		
						M	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*
Parent	TO	School	Autonomy	6	2	3.39	0.47	3.41	0.46	0.03	3.39	0.47	3.41	0.46	0.04
Parent	TO	School	Autonomy	7	3	3.44	0.45	3.46	0.44	0.03	3.45	0.43	3.47	0.42	0.05
Parent	TO	School	Autonomy	8	4	3.47	0.43	3.48	0.42	0.03	3.46	0.43	3.49	0.41	0.05
			Age			128.56	4.95	128.58	4.93	0.00	128.48	5.01	128.54	4.96	0.01
			Gender			0.52	0.50	0.53	0.50	0.02	0.53	0.50	0.54	0.50	0.02
			Migration background			0.18	0.38	0.17	0.37	-0.03	0.18	0.38	0.17	0.37	-0.03
			HISEI			64.78	17.53	65.21	17.34	0.02	65.05	17.45	65.49	17.10	0.03
			Educational attainment			15.52	2.18	15.58	2.17	0.03	15.59	2.17	15.64	2.15	0.02

Note. The effect size Cohen's *d* (effect size in *SD* units) indicates the selectivity of the analysis sample for each grade as used in the present paper. A positive value of *d* implies that the value of a certain measure was larger in the total base sample compared to the analysis sample. A negative value of *d* implies that the value of a certain measure was smaller in the total base sample compared to the analysis sample. TBS = Total base sample. AS = Analysis sample. SO = Self-orientation. OO = Other-orientation. TO = Task-orientation. HISEI = Highest International Socio-Economic Index of Occupational Status (Ganzeboom & Treiman, 1996).

Table A1.8

Estimates of Sample Selectivity for NEPS-SC4 (Grades 9 to 10)

Method	Domain	Context	Measure	Grade	Wave	Grade 9/1						Grade 9/2						Grade 10					
						TBS N = 15,201		AS N = 14,466				TBS N = 14,912		AS N = 14,540				TBS N = 11,704		AS N = 10,046			
						M	*SD*	*M*	*SD*	*d*		*M*	*SD*	*M*	*SD*	*d*		*M*	*SD*	*M*	*SD*	*d*	
Student	SO	General	Big Five: Conscientiousness	9	1	3.15	0.87	3.15	0.87	0.00		3.16	0.87	3.16	0.87	0.00		3.15	0.86	3.17	0.86	0.02	
Student	SO	General	Big Five: Neuroticism	9	1	2.77	0.86	2.77	0.86	0.00		2.77	0.86	2.77	0.86	0.00		2.77	0.85	2.77	0.84	0.00	
Student	SO	General	Self-esteem	9	1	39.25	6.33	39.28	6.33	0.00		39.29	6.31	39.31	6.31	0.00		39.51	6.22	39.48	6.21	-0.01	
Student	SO	General	Self-esteem	12	7																		
Student	SO	General	Self-esteem	13	8																		
Student	SO	School	Academic self-concept	9	1	2.88	0.57	2.88	0.58	0.00		2.89	0.57	2.89	0.57	0.00		2.91	0.57	2.92	0.56	0.02	
Student	SO	School	Academic self-concept	12	7																		
Student	SO	School	Academic self-concept	13	8																		
Student	SO	Mathematics	Helplessness	9	2							1.69	0.75	1.69	0.74	0.00		1.64	0.71	1.64	0.71	0.00	
Student	SO	Mathematics	Self-concept	9	1	2.51	0.92	2.51	0.92	0.00		2.52	0.92	2.52	0.92	0.00		2.54	0.92	2.54	0.91	0.00	
Student	SO	Mathematics	Self-concept	12	7																		
Student	SO	Mathematics	Self-concept	13	8																		
Student	SO	Verbal: German	Helplessness	9	2							1.68	0.62	1.68	0.62	0.00		1.65	0.59	1.65	0.60	0.00	
Student	SO	Verbal: German	Self-concept	9	1	2.94	0.62	2.93	0.62	0.00		2.94	0.62	2.94	0.62	0.00		2.96	0.61	2.96	0.60	0.00	
Student	SO	Verbal: German	Self-concept	12	7																		
Student	SO	Verbal: German	Self-concept	13	8																		
Student	OO	General	Big Five: Agreeableness	9	1	3.45	0.67	3.45	0.67	0.00		3.45	0.67	3.45	0.67	0.00		3.45	0.66	3.46	0.66	0.01	
Student	OO	General	Big Five: Extraversion	9	1	3.43	0.88	3.44	0.88	0.00		3.43	0.88	3.43	0.88	0.00		3.44	0.88	3.43	0.89	-0.01	
Student	OO	General	ICQ: Ability to deal with conflict	12	7																		
Student	OO	General	ICQ: Ability to deal with conflict	13	8																		
Student	OO	General	ICQ: Assertiveness	12	7																		
Student	OO	General	ICQ: Assertiveness	13	8																		
Student	OO	General	SDQ: Problem behavior	9	2							2.12	1.64	2.12	1.63	0.00		2.02	1.57	2.03	1.57	0.01	
Student	OO	General	SDQ: Prosocial behavior	9	2							7.52	1.84	7.52	1.83	0.00		7.57	1.77	7.59	1.77	0.01	
Student	TO	General	Big Five: Openness	9	1	3.48	0.95	3.47	0.95	0.00		3.48	0.95	3.47	0.95	0.00		3.51	0.95	3.49	0.95	-0.02	
Student	TO	General	RIASEC: Artistic interests (IILS)	9	2							2.55	1.02	2.55	1.02	0.00		2.58	1.02	2.57	1.02	-0.02	
Student	TO	General	RIASEC: Artistic interests (IILS)	12	7																		
Student	TO	General	RIASEC: Artistic interests (IILS)	13	8																		
Student	TO	General	RIASEC: Conventional interests (IILS)	9	2							2.48	0.87	2.49	0.87	0.00		2.48	0.85	2.49	0.86	0.02	
Student	TO	General	RIASEC: Conventional interests (IILS)	12	7																		
Student	TO	General	RIASEC: Conventional interests (IILS)	13	8																		

(Table continues)

Table A1.8 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Grade 9/1					Grade 9/2					Grade 10				
						TBS N = 15,201		AS N = 14,466			TBS N = 14,912		AS N = 14,540			TBS N = 11,704		AS N = 10,046		
						M	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*
Student	TO	General	RIASEC: Enterprising interests (IILS)	9	2						3.03	0.85	3.03	0.85	0.00	3.04	0.84	3.03	0.84	-0.01
Student	TO	General	RIASEC: Enterprising interests (IILS)	12	7															
Student	TO	General	RIASEC: Enterprising interests (IILS)	13	8															
Student	TO	General	RIASEC: Investigative interests (IILS)	9	2						2.63	0.98	2.64	0.98	0.00	2.66	0.97	2.66	0.97	0.01
Student	TO	General	RIASEC: Investigative interests (IILS)	12	7															
Student	TO	General	RIASEC: Investigative interests (IILS)	13	8															
Student	TO	General	RIASEC: Realistic interests (IILS)	9	2						2.78	1.06	2.78	1.06	0.00	2.76	1.05	2.77	1.06	0.00
Student	TO	General	RIASEC: Realistic interests (IILS)	12	7															
Student	TO	General	RIASEC: Realistic interests (IILS)	13	8															
Student	TO	General	RIASEC: Social interests (IILS)	9	2						3.07	0.99	3.07	0.99	0.00	3.07	0.98	3.07	0.98	0.00
Student	TO	General	RIASEC: Social interests (IILS)	12	7															
Student	TO	General	RIASEC: Social interests (IILS)	13	8															
Student	TO	General	TenFlex: Flexibility	10	3											15.85	3.21	15.87	3.20	0.01
Student	TO	General	TenFlex: Persistence	10	3											18.29	2.94	18.30	2.93	0.00
Student	TO	School	Achievement-related learning motivation	11	5															
Student	TO	School	Competitive learning motivation	11	5															
Student	TO	School	Intrinsic value German	11	5															
Student	TO	School	Intrinsic value math	11	5															
Student	TO	School	Job-related learning motivation	11	5															
Student	TO	Mathematics	Interest	9	2						2.17	0.81	2.17	0.81	0.00	2.15	0.80	2.16	0.80	0.01
Student	TO	Verbal: German	Interest	9	2						2.23	0.79	2.23	0.79	0.00	2.24	0.79	2.23	0.78	-0.01
Parent	OO	General	SDQ: Prosocial behavior	9	1	8.56	1.46	8.56	1.45	0.00	8.57	1.45	8.57	1.44	0.00	8.58	1.44	8.59	1.43	0.01
Parent	TO	General	RIASEC: Artistic interests (IILS)	12	7															
Parent	TO	General	RIASEC: Conventional interests (IILS)	12	7															
Parent	TO	General	RIASEC: Enterprising interests (IILS)	12	7															
Parent	TO	General	RIASEC: Investigative interests (IILS)	12	7															
Parent	TO	General	RIASEC: Realistic interests (IILS)	12	7															
Parent	TO	General	RIASEC: Social interests (IILS)	12	7															

(Table continues)

Table A1.8 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Grade 9/1					Grade 9/2					Grade 10				
						TBS N = 15,201		AS N = 14,466			TBS N = 14,912		AS N = 14,540			TBS N = 11,704		AS N = 10,046		
						M	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*
			Age			181.27	7.65	181.19	7.58	-0.01	181.23	7.61	181.21	7.59	0.00	180.27	6.95	180.47	7.03	0.03
			Gender			0.50	0.50	0.50	0.50	0.00	0.50	0.50	0.50	0.50	0.00	0.51	0.50	0.51	0.50	0.00
			Migration background			0.20	0.40	0.20	0.40	0.00	0.20	0.40	0.20	0.40	0.00	0.19	0.39	0.19	0.39	0.00
			HISEI			53.56	20.37	53.47	20.32	0.00	53.67	20.36	53.55	20.31	-0.01	55.68	19.98	54.65	20.01	-0.05
			Educational attainment			14.18	2.37	14.17	2.37	-0.01	14.20	2.37	14.18	2.37	-0.01	14.45	2.34	14.32	2.32	-0.06

Note. The effect size Cohen's *d* (effect size in *SD* units) indicates the selectivity of the analysis sample for each grade as used in the present paper. A positive value of *d* implies that the value of a certain measure was larger in the total base sample compared to the analysis sample. A negative value of *d* implies that the value of a certain measure was smaller in the total base sample compared to the analysis sample. TBS = Total base sample. AS = Analysis sample. SO = Self-orientation. OO = Other-orientation. TO = Task-orientation. HISEI = Highest International Socio-Economic Index of Occupational Status (Ganzeboom & Treiman, 1996).

Table A1.9

Estimates of Sample Selectivity for NEPS-SC4 (Grades 11 to 13)

Method	Domain	Context	Measure	Grade	Wave	Grade 11						Grade 12						Grade 13					
						TBS N = 4,928		AS N = 4,567				TBS N = 4,453		AS N = 3,967				TBS N = 678		AS N = 562			
						M	*SD*	*M*	*SD*	*d*		*M*	*SD*	*M*	*SD*	*d*		*M*	*SD*	*M*	*SD*	*d*	
Student	SO	General	Big Five: Conscientiousness	9	1	3.08	0.88	3.09	0.88	0.01		3.10	0.87	3.12	0.87	0.02		3.19	0.86	3.21	0.87	0.01	
Student	SO	General	Big Five: Neuroticism	9	1	2.74	0.87	2.75	0.87	0.00		2.75	0.86	2.75	0.86	0.00		2.73	0.85	2.73	0.86	-0.01	
Student	SO	General	Self-esteem	9	1	40.04	6.20	40.08	6.18	0.01		40.11	6.13	40.18	6.08	0.01		40.16	6.17	40.40	6.22	0.04	
Student	SO	General	Self-esteem	12	7							39.15	6.95	39.25	6.89	0.01		39.03	7.15	39.06	7.21	0.00	
Student	SO	General	Self-esteem	13	8													40.41	6.42	40.50	6.36	0.01	
Student	SO	School	Academic self-concept	9	1	2.98	0.57	3.00	0.56	0.04		3.00	0.57	3.02	0.55	0.04		3.10	0.53	3.13	0.52	0.06	
Student	SO	School	Academic self-concept	12	7							2.95	0.62	2.97	0.61	0.04		2.92	0.59	2.93	0.58	0.02	
Student	SO	School	Academic self-concept	13	8													2.98	0.58	3.01	0.57	0.06	
Student	SO	Mathematics	Helplessness	9	2	1.58	0.66	1.56	0.64	-0.03		1.56	0.65	1.54	0.63	-0.03		1.53	0.63	1.52	0.62	0.00	
Student	SO	Mathematics	Self-concept	9	1	2.62	0.93	2.64	0.92	0.03		2.64	0.93	2.67	0.92	0.03		2.75	0.89	2.79	0.89	0.05	
Student	SO	Mathematics	Self-concept	12	7							2.49	0.99	2.51	0.99	0.02		2.47	0.97	2.47	0.97	0.01	
Student	SO	Mathematics	Self-concept	13	8													2.49	1.01	2.53	1.00	0.04	
Student	SO	Verbal: German	Helplessness	9	2	1.60	0.57	1.59	0.55	-0.02		1.60	0.56	1.58	0.55	-0.03		1.49	0.50	1.48	0.48	-0.03	
Student	SO	Verbal: German	Self-concept	9	1	3.03	0.61	3.04	0.61	0.01		3.04	0.60	3.06	0.60	0.02		3.11	0.56	3.13	0.55	0.04	
Student	SO	Verbal: German	Self-concept	12	7							2.97	0.71	2.98	0.72	0.02		3.02	0.65	3.03	0.64	0.02	
Student	SO	Verbal: German	Self-concept	13	8													3.05	0.70	3.07	0.69	0.02	
Student	OO	General	Big Five: Agreeableness	9	1	3.43	0.65	3.44	0.65	0.01		3.44	0.65	3.44	0.65	0.01		3.47	0.65	3.46	0.65	-0.01	
Student	OO	General	Big Five: Extraversion	9	1	3.47	0.89	3.46	0.89	0.00		3.46	0.89	3.45	0.89	0.00		3.50	0.90	3.50	0.91	0.00	
Student	OO	General	ICQ: Ability to deal with conflict	12	7							3.55	0.64	3.55	0.64	0.01		3.51	0.67	3.52	0.66	0.01	
Student	OO	General	ICQ: Ability to deal with conflict	13	8													3.62	0.68	3.61	0.69	-0.01	
Student	OO	General	ICQ: Assertiveness	12	7							3.57	0.67	3.56	0.68	-0.01		3.63	0.65	3.64	0.64	0.02	
Student	OO	General	ICQ: Assertiveness	13	8													3.68	0.70	3.68	0.70	0.00	
Student	OO	General	SDQ: Problem behavior	9	2	1.88	1.55	1.88	1.55	0.00		1.87	1.55	1.87	1.55	0.00		1.93	1.52	1.94	1.57	0.01	
Student	OO	General	SDQ: Prosocial behavior	9	2	7.64	1.71	7.67	1.68	0.02		7.66	1.70	7.70	1.69	0.02		7.78	1.70	7.82	1.68	0.02	
Student	TO	General	Big Five: Openness	9	1	3.59	0.96	3.59	0.96	0.00		3.59	0.96	3.59	0.96	0.00		3.62	0.95	3.61	0.95	-0.01	
Student	TO	General	RIASEC: Artistic interests (IILS)	9	2	2.70	1.03	2.70	1.03	0.00		2.71	1.03	2.71	1.03	0.00		2.71	1.02	2.69	1.02	-0.01	
Student	TO	General	RIASEC: Artistic interests (IILS)	12	7							2.68	1.00	2.67	1.00	0.00		2.70	0.98	2.67	0.97	-0.03	
Student	TO	General	RIASEC: Artistic interests (IILS)	13	8													2.66	1.04	2.63	1.03	-0.03	
Student	TO	General	RIASEC: Conventional interests (IILS)	9	2	2.40	0.83	2.40	0.83	0.01		2.40	0.83	2.40	0.83	0.01		2.48	0.87	2.48	0.89	0.00	
Student	TO	General	RIASEC: Conventional interests (IILS)	12	7							2.60	0.81	2.60	0.81	0.00		2.62	0.81	2.61	0.82	-0.02	
Student	TO	General	RIASEC: Conventional interests (IILS)	13	8													2.65	0.82	2.66	0.83	0.02	

(Table continues)

Table A1.9 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Grade 11 TBS N = 4,928 M	SD	AS N = 4,567 M	SD	d	Grade 12 TBS N = 4,453 M	SD	AS N = 3,967 M	SD	d	Grade 13 TBS N = 678 M	SD	AS N = 562 M	SD	d
Student	TO	General	RIASEC: Enterprising interests (IILS)	9	2	3.06	0.82	3.05	0.82	-0.01	3.05	0.81	3.05	0.81	-0.01	3.11	0.81	3.10	0.83	-0.01
Student	TO	General	RIASEC: Enterprising interests (IILS)	12	7						3.24	0.78	3.25	0.78	0.00	3.24	0.77	3.24	0.76	0.00
Student	TO	General	RIASEC: Enterprising interests (IILS)	13	8											3.22	0.80	3.22	0.81	0.00
Student	TO	General	RIASEC: Investigative interests (IILS)	9	2	2.75	0.96	2.76	0.96	0.01	2.76	0.96	2.77	0.96	0.01	2.77	0.97	2.78	0.97	0.01
Student	TO	General	RIASEC: Investigative interests (IILS)	12	7						2.79	0.90	2.80	0.90	0.01	2.87	0.93	2.88	0.95	0.01
Student	TO	General	RIASEC: Investigative interests (IILS)	13	8											2.88	0.97	2.88	0.98	0.00
Student	TO	General	RIASEC: Realistic interests (IILS)	9	2	2.69	0.95	2.69	0.95	0.00	2.70	0.95	2.70	0.95	0.00	2.67	0.96	2.66	0.96	-0.01
Student	TO	General	RIASEC: Realistic interests (IILS)	12	7						2.83	0.91	2.83	0.91	0.00	2.79	0.90	2.77	0.91	-0.02
Student	TO	General	RIASEC: Realistic interests (IILS)	13	8											2.80	0.91	2.81	0.92	0.01
Student	TO	General	RIASEC: Social interests (IILS)	9	2	3.08	0.93	3.08	0.93	0.00	3.09	0.93	3.09	0.92	0.00	3.14	0.93	3.11	0.91	-0.03
Student	TO	General	RIASEC: Social interests (IILS)	12	7						3.25	0.89	3.25	0.89	0.00	3.27	0.86	3.24	0.85	-0.04
Student	TO	General	RIASEC: Social interests (IILS)	13	8											3.19	0.91	3.16	0.93	-0.03
Student	TO	General	TenFlex: Flexibility	10	3	15.66	3.29	15.65	3.27	0.00	15.66	3.29	15.65	3.24	0.00	16.00	3.39	15.91	3.29	-0.02
Student	TO	General	TenFlex: Persistence	10	3	18.14	2.94	18.15	2.93	0.00	18.16	2.93	18.16	2.92	0.00	18.55	3.07	18.66	3.03	0.04
Student	TO	School	Achievement-related learning motivation	11	5	3.13	0.55	3.14	0.55	0.02	3.14	0.54	3.16	0.54	0.03	3.17	0.56	3.20	0.54	0.05
Student	TO	School	Competitive learning motivation	11	5	2.18	0.69	2.19	0.69	0.02	2.19	0.69	2.21	0.69	0.02	2.20	0.73	2.21	0.73	0.01
Student	TO	School	Intrinsic value German	11	5	2.20	0.74	2.20	0.74	-0.01	2.20	0.74	2.21	0.74	0.00	2.32	0.73	2.29	0.72	-0.05
Student	TO	School	Intrinsic value math	11	5	2.30	0.90	2.30	0.90	0.00	2.31	0.90	2.32	0.90	0.00	2.36	0.93	2.34	0.93	-0.03
Student	TO	School	Job-related learning motivation	11	5	3.53	0.51	3.54	0.51	0.02	3.54	0.51	3.55	0.50	0.02	3.55	0.51	3.58	0.48	0.05
Student	TO	Mathematics	Interest	9	2	2.10	0.79	2.11	0.80	0.02	2.11	0.80	2.12	0.80	0.01	2.21	0.83	2.23	0.86	0.02
Student	TO	Verbal: German	Interest	9	2	2.36	0.79	2.36	0.79	0.01	2.37	0.79	2.38	0.79	0.01	2.41	0.77	2.40	0.77	-0.01
Parent	OO	General	SDQ: Prosocial behavior	9	1	8.58	1.45	8.58	1.44	0.00	8.59	1.43	8.60	1.42	0.01	8.78	1.31	8.80	1.27	0.02
Parent	TO	General	RIASEC: Artistic interests (IILS)	12	7						3.17	1.08	3.17	1.08	0.00	3.27	1.08	3.25	1.08	-0.02
Parent	TO	General	RIASEC: Conventional interests (IILS)	12	7						2.94	0.90	2.96	0.90	0.02	2.99	0.92	3.06	0.92	0.08
Parent	TO	General	RIASEC: Enterprising interests (IILS)	12	7						3.60	0.87	3.60	0.87	0.00	3.66	0.84	3.66	0.84	0.00
Parent	TO	General	RIASEC: Investigative interests (IILS)	12	7						3.27	0.98	3.27	0.98	0.00	3.43	0.96	3.42	0.97	-0.01
Parent	TO	General	RIASEC: Realistic interests (IILS)	12	7						2.77	0.95	2.77	0.95	0.00	2.84	0.88	2.80	0.90	-0.04
Parent	TO	General	RIASEC: Social interests (IILS)	12	7						3.64	0.89	3.63	0.90	-0.01	3.74	0.90	3.75	0.90	0.01

(Table continues)

Table A1.9 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Grade 11					Grade 12					Grade 13				
						TBS		AS			TBS		AS			TBS		AS		
						N = 4,928		N = 4,567			N = 4,453		N = 3,967			N = 678		N = 562		
						M	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*	*M*	*SD*	*M*	*SD*	*d*
			Age			178.19	5.78	178.15	5.81	-0.01	178.05	5.69	178.02	5.68	0.00	178.14	5.18	178.03	5.27	-0.02
			Gender			0.55	0.50	0.56	0.50	0.02	0.55	0.50	0.56	0.50	0.03	0.58	0.49	0.59	0.49	0.03
			Migration background			0.18	0.38	0.17	0.38	-0.01	0.17	0.38	0.17	0.37	-0.01	0.20	0.40	0.20	0.40	-0.02
			HISEI			63.01	18.05	63.09	17.93	0.00	63.28	17.92	63.38	17.89	0.01	60.84	19.31	59.56	19.24	-0.07
			Educational attainment			15.40	2.23	15.41	2.22	0.01	15.41	2.23	15.45	2.20	0.02	15.02	2.37	14.84	2.35	-0.07

Note. The effect size Cohen's *d* (effect size in *SD* units) indicates the selectivity of the analysis sample for each grade as used in the present paper. A positive value of *d* implies that the value of a certain measure was larger in the total base sample compared to the analysis sample. A negative value of *d* implies that the value of a certain measure was smaller in the total base sample compared to the analysis sample. TBS = Total base sample. AS = Analysis sample. SO = Self-orientation. OO = Other-orientation. TO = Task-orientation. HISEI = Highest International Socio-Economic Index of Occupational Status (Ganzeboom & Treiman, 1996).

Table A1.10

Estimates of Sample Selectivity for PISA 2006

Method	Domain	Context	Measure	Grade	Wave	Grade 9				
						TBS N = 1,638		AS N = 1,607		
						M	*SD*	*M*	*SD*	*d*
Student	SO	Science	Self-concept	9		-0.02	2.45	-0.02	2.45	0.00
Student	SO	Science	Self-efficacy	9		-0.11	1.28	-0.11	1.28	0.00
Student	SO	ICT	Self-concept advanced skills	9		0.00	1.43	0.00	1.43	0.00
Student	SO	ICT	Self-concept internet applications	9		-0.72	1.26	-0.72	1.26	0.00
Student	TO	Science	Enjoyment	9		-0.48	3.16	-0.48	3.16	0.00
Student	TO	Science	Future-related motivation	9		-0.14	2.53	-0.14	2.53	0.00
Student	TO	Science	Interest	9		-0.05	1.13	-0.05	1.13	0.00
Student	TO	Science	Instrumental value	9		-0.41	2.46	-0.41	2.46	0.00
Student	TO	Science	Personal value	9		-0.07	1.61	-0.07	1.61	0.00
			Age			188.23	3.09	188.22	3.08	0.00
			Gender			0.47	0.50	0.47	0.50	0.00
			Migration background			0.20	0.40	0.20	0.40	0.00
			HISEI			49.07	15.59	49.11	15.62	0.00
			Educational attainment			14.34	2.78	14.34	2.78	0.00

Note. The effect size Cohen's *d* (effect size in *SD* units) indicates the selectivity of the analysis sample for each grade as used in the present paper. A positive value of *d* implies that the value of a certain measure was larger in the total base sample compared to the analysis sample. A negative value of *d* implies that the value of a certain measure was smaller in the total base sample compared to the analysis sample. TBS = Total base sample. AS = Analysis sample. SO = Self-orientation. TO = Task-orientation. HISEI = Highest International Socio-Economic Index of Occupational Status (Ganzeboom & Treiman, 1996).

Table A1.11

Estimates of Sample Selectivity for PISA 2009

Method	Domain	Context	Measure	Grade	Wave	Grade 9				
						TBS N = 7,341		AS N = 7,340		
						M	SD	M	SD	d
Student	SO	ICT	Self-efficacy advanced skills	9		0.15	0.95	0.15	0.95	0.00
Student	SO	Verbal: German	Reading self-concept	9		2.89	0.61	2.89	0.61	0.00
Student	SO	Verbal: German	Self-concept	9		3.04	0.68	3.04	0.68	0.00
Student	TO	ICT	Attitude	9		0.18	0.84	0.18	0.84	0.00
Student	TO	Verbal: German	Attitude towards reading	9		3.02	0.59	3.02	0.59	0.00
Student	TO	Verbal: German	Enjoyment of reading	9		0.15	1.18	0.15	1.18	0.00
Student	TO	Verbal: German	Reading interest	9		2.57	1.07	2.57	1.07	0.00
			Age			186.56	8.26	186.56	8.26	0.00
			Gender			0.50	0.50	0.50	0.50	0.00
			Migration background			0.25	0.44	0.25	0.44	0.00
			HISEI			50.28	15.61	50.28	15.61	0.00
			Educational attainment			14.51	3.00	14.51	3.00	0.00

Note. The effect size Cohen's *d* (effect size in *SD* units) indicates the selectivity of the analysis sample for each grade as used in the present paper. A positive value of *d* implies that the value of a certain measure was larger in the total base sample compared to the analysis sample. A negative value of *d* implies that the value of a certain measure was smaller in the total base sample compared to the analysis sample. TBS = Total base sample. AS = Analysis sample. SO = Self-orientation. TO = Task-orientation. HISEI = Highest International Socio-Economic Index of Occupational Status (Ganzeboom & Treiman, 1996).

Table A1.12

Estimates of Sample Selectivity for PISA 2012

Method	Domain	Context	Measure	Grade	Wave	Grade 9				
						TBS N = 9,998		AS N = 8,772		
						M	*SD*	*M*	*SD*	*d*
Student	SO	Mathematics	Anxiety	9		-0.25	1.13	-0.25	1.13	0.00
Student	SO	Mathematics	Self-concept	9		0.06	1.10	0.06	1.10	0.00
Student	SO	Mathematics	Self-efficacy	9		0.19	0.98	0.19	0.98	0.00
Student	OO	School	Sense of belonging to school	9		0.24	1.02	0.24	1.02	0.00
Student	TO	School	Achievement-related learning motivation	9		-0.06	1.06	-0.06	1.06	0.00
Student	TO	School	Mastery-related learning motivation	9		0.08	0.95	0.08	0.95	0.00
Student	TO	School	Openness for problem solving	9		0.02	0.96	0.02	0.96	0.00
Student	TO	School	Perseverance	9		-0.08	0.96	-0.08	0.96	0.00
Student	TO	Mathematics	Attributions to failure	9		0.18	0.94	0.18	0.94	0.00
Student	TO	Mathematics	Instrumental value	9		-0.21	1.02	-0.21	1.02	0.00
Student	TO	Mathematics	Interest	9		-0.25	1.05	-0.25	1.05	0.00
Student	TO	Mathematics	Work ethic	9		0.00	1.06	0.00	1.06	0.00
			Age			185.70	6.04	185.51	5.98	-0.03
			Gender			0.50	0.50	0.51	0.50	0.02
			Migration background			0.14	0.35	0.14	0.35	0.00
			HISEI			61.10	24.40	56.55	21.61	-0.19
			Educational attainment			14.25	3.30	14.28	3.28	0.01

Note. The effect size Cohen's *d* (effect size in *SD* units) indicates the selectivity of the analysis sample for each grade as used in the present paper. A positive value of *d* implies that the value of a certain measure was larger in the total base sample compared to the analysis sample. A negative value of *d* implies that the value of a certain measure was smaller in the total base sample compared to the analysis sample. TBS = Total base sample. AS = Analysis sample. SO = Self-orientation. OO = Other-orientation. TO = Task-orientation. HISEI = Highest International Socio-Economic Index of Occupational Status (Ganzeboom & Treiman, 1996).

A2   Measures

Tables A2.1, A2.2, and A2.3 detail all SEL measures applied in this study as assessed through student self-reports, parent ratings, and teacher ratings, respectively.

Table A2.1

SEL Measures Analyzed in the Present Study: Student Self-Reports

Domain	Context	Measure	Study	Grade	Wave	Assessment period (MM/YY)	Variable	N items	Reliability	Pretest wave	Time lag
SO	General	Big Five: Conscientiousness	NEPS-SC3	7	3	11/12 to 06/13	t66800c_g1	2	0.53		
SO	General	Big Five: Conscientiousness	NEPS-SC3	9	5	11/14 to 01/15	t66800c_g1	2	0.50	3	21
SO	General	Big Five: Conscientiousness	NEPS-SC4	9	1	11/10 to 01/11	t66800c_g1	2	0.53		
SO	General	Big Five: Neuroticism	NEPS-SC3	7	3	11/12 to 06/13	t66800d_g1	2	0.33		
SO	General	Big Five: Neuroticism	NEPS-SC3	9	5	11/14 to 01/15	t66800d_g1	2	0.45	3	21
SO	General	Big Five: Neuroticism	NEPS-SC4	9	1	11/10 to 01/11	t66800d_g1	2	0.40		
SO	General	Self-esteem	IQB Trends	4		05/16 to 07/16	sswert	5	0.85		
SO	General	Self-esteem	NEPS-SC3	5	1	10/10 to 01/11	t66003a_g1	10	0.79		
SO	General	Self-esteem	NEPS-SC3	9	5	11/14 to 01/15	t66003a_g1	10	0.89	1	48
SO	General	Self-esteem	NEPS-SC3	12	9	10/17 to 06/18	t66003a_g1	10	0.90	5	38
SO	General	Self-esteem	NEPS-SC4	9	1	11/10 to 01/11	t66003a_g1	10	0.85		
SO	General	Self-esteem	NEPS-SC4	12	7	11/13 to 01/14	t66003a_g1	10	0.90	1	36
SO	General	Self-esteem	NEPS-SC4	13	8	11/14 to 01/15	t66003a_g1	10	0.89	7	12
SO	School	Academic self-concept	NEPS-SC3	5	1	10/10 to 01/11	t66002a_g1	3	0.82		
SO	School	Academic self-concept	NEPS-SC3	9	5	11/14 to 01/15	t66002a_g1	3	0.83	1	48
SO	School	Academic self-concept	NEPS-SC3	12	9	10/17 to 06/18	t66002a_g1	3	0.86	5	38
SO	School	Academic self-concept	NEPS-SC4	9	1	11/10 to 01/11	t66002a_g1	3	0.81		
SO	School	Academic self-concept	NEPS-SC4	12	7	11/13 to 01/14	t66002a_g1	3	0.86	1	36
SO	School	Academic self-concept	NEPS-SC4	13	8	11/14 to 01/15	t66002a_g1	3	0.85	7	12
SO	Mathematics	Anxiety	IQB Trends	4		05/16 to 07/16	sanm	3	0.74		
SO	Mathematics	Anxiety	PISA 2003	9	1	04/03 to 05/03	ax_w	n/a	0.90		
SO	Mathematics	Anxiety	PISA 2003	10	2	05/04	ax_t2	n/a	0.90	1	12
SO	Mathematics	Anxiety	PISA 2012	9		03/12 to 06/12	anxmat	5	0.87		
SO	Mathematics	Helplessness	NEPS-SC3	7	3	11/12 to 06/13	t66005a_g1	5	0.90		
SO	Mathematics	Helplessness	NEPS-SC3	9	6	04/15 to 07/15	t66005a_g1	5	0.90	3	26
SO	Mathematics	Helplessness	NEPS-SC4	9	2	05/11 to 07/11	t66005a_g1	5	0.91		

(Table continues)

Table A2.1 *(continued)*

Domain	Context	Measure	Study	Grade	Wave	Assessment period (MM/YY)	Variable	N items	Reliability	Pretest wave	Time lag
SO	Mathematics	Self-concept	IQB Trends	4		05/16 to 07/16	sskma16/sskm	4	0.93		
SO	Mathematics	Self-concept	PISA 2003	9	1	04/03 to 05/03	scmat_w_imp	n/a	0.91		
SO	Mathematics	Self-concept	PISA 2003	10	2	05/04	msk_t2	n/a	0.92	1	12
SO	Mathematics	Self-concept	PISA 2012	9		03/12 to 06/12	scmat	5	0.91		
SO	Mathematics	Self-concept	NEPS-SC3	5	1	10/10 to 01/11	t66001a_g1	3	0.86		
SO	Mathematics	Self-concept	NEPS-SC3	9	5	11/14 to 01/15	t66001a_g1	3	0.89	1	48
SO	Mathematics	self-concept	NEPS-SC3	12	9	10/17 to 06/18	t66001a_g1	3	0.89	5	38
SO	Mathematics	Self-concept	NEPS-SC4	9	1	11/10 to 01/11	t66001a_g1	3	0.89		
SO	Mathematics	Self-concept	NEPS-SC4	12	7	11/13 to 01/14	t66001a_g1	3	0.89	1	36
SO	Mathematics	Self-concept	NEPS-SC4	13	8	11/14 to 01/15	t66001a_g1	3	0.89	7	12
SO	Mathematics	Self-efficacy	PISA 2003	9	1	04/03 to 05/03	mathef_w_imp	n/a	0.79		
SO	Mathematics	Self-efficacy	PISA 2003	10	2	05/04	mse_t2	n/a	0.82	1	12
SO	Mathematics	Self-efficacy	PISA 2012	9		03/12 to 06/12	matheff	8	0.81		
SO	Mathematics	Self-efficacy	NEPS-SC3	7	3	11/12 to 06/13	tMSE*	4	0.91		
SO	Science	Self-concept	PISA 2006	9		05/06 to 06/06	scscie_wle	6	0.85		
SO	Science	Self-efficacy	PISA 2006	9		05/06 to 06/06	scieeff_wle	8	0.77		
SO	ICT	Computer self-concept	NEPS-SC2	3	5	10/14 to 04/15	tICTSC*	3	0.76		
SO	ICT	Self-concept advanced skills	PISA 2006	9		05/06 to 06/06	highconf_wle	8	0.73		
SO	ICT	Self-concept internet applications	PISA 2006	9		05/06 to 06/06	intconf_wle	6	0.59		
SO	ICT	Self-efficacy advanced skills	PISA 2009	9		04/09 to 05/09	highconf		n/a		
SO	Verbal: German	Anxiety	IQB Trends	4		05/16 to 07/16	sand	3	0.76		
SO	Verbal: German	Helplessness	NEPS-SC3	7	3	11/12 to 06/13	t66004a_g1	5	0.85		
SO	Verbal: German	Helplessness	NEPS-SC3	9	6	04/15 to 07/15	t66004a_g1	5	0.85	3	26
SO	Verbal: German	Helplessness	NEPS-SC4	9	2	05/11 to 07/11	t66004a_g1	5	0.84		
SO	Verbal: German	Reading self-concept	PISA 2009	9		04/09 to 05/09	sk_lesen	6	0.76		
SO	Verbal: German	Reading self-concept	NEPS-SC3	5	1	10/10 to 01/11	tGSCRead*	3	0.68		
SO	Verbal: German	Reading self-concept	NEPS-SC3	7	3	11/12 to 06/13	tGSCRead*	3	0.69	1	27
SO	Verbal: German	Reading self-concept	NEPS-SC3	8	4	11/13 to 02/14	tGSCRead*	3	0.78	3	9

(Table continues)

Table A2.1 *(continued)*

Domain	Context	Measure	Study	Grade	Wave	Assessment period (MM/YY)	Variable	N items	Reliability	Pretest wave	Time lag
SO	Verbal: German	Reading self-concept	NEPS-SC3	9	6	04/15 to 07/15	tGSCRead*	3	0.73	4	17
SO	Verbal: German	Self-concept	DESI	9	1	09/03 to 10/03	fskud1	10	0.89		
SO	Verbal: German	Self-concept	DESI	9	2	05/04 to 07/04	fskud2	10	0.91	1	8
SO	Verbal: German	Self-concept	IQB Trends	4		05/16 to 07/16	sskde16/sskd	4	0.85		
SO	Verbal: German	Self-concept	PISA 2009	9		04/09 to 05/09	sk_deu	6	0.77		
SO	Verbal: German	Self-concept	NEPS-SC3	5	1	10/10 to 01/11	t66000a_g1	3	0.72		
SO	Verbal: German	Self-concept	NEPS-SC3	9	5	11/14 to 01/15	t66000a_g1	3	0.82	1	48
SO	Verbal: German	Self-concept	NEPS-SC3	12	9	10/17 to 06/18	t66000a_g1	3	0.87	5	38
SO	Verbal: German	Self-concept	NEPS-SC4	9	1	11/10 to 01/11	t66000a_g1	3	0.81		
SO	Verbal: German	Self-concept	NEPS-SC4	12	7	11/13 to 01/14	t66000a_g1	3	0.87	1	36
SO	Verbal: German	Self-concept	NEPS-SC4	13	8	11/14 to 01/15	t66000a_g1	3	0.87	7	12
SO	Verbal: German	Self-concept advanced skills	DESI	9	1	09/03 to 10/03	fskewd1	5	0.80		
SO	Verbal: German	Self-concept advanced skills	DESI	9	2	05/04 to 07/04	fskewd2	5	0.81	1	8
SO	Verbal: German	Self-concept basic skills	DESI	9	1	09/03 to 10/03	fskeld1	5	0.82		
SO	Verbal: German	Self-concept basic skills	DESI	9	2	05/04 to 07/04	fskeld2	5	0.83	1	8
SO	Verbal: German	Self-efficacy	DESI	9	1	09/03 to 10/03	slfeffd1	8	0.80		
SO	Verbal: German	Self-efficacy	DESI	9	2	05/04 to 07/04	slfeffd2	8	0.87	1	8
SO	Verbal: English	Self-concept	DESI	9	1	09/03 to 10/03	fskue1	10	0.91		
SO	Verbal: English	Self-concept	DESI	9	2	05/04 to 07/04	fskue2	10	0.93	1	8
SO	Verbal: English	Self-concept advanced skills	DESI	9	1	09/03 to 10/03	fskkoe1	6	0.89		
SO	Verbal: English	Self-concept advanced skills	DESI	9	2	05/04 to 07/04	fskkoe2	6	0.90	1	8
SO	Verbal: English	Self-efficacy	DESI	9	1	09/03 to 10/03	slfeffe1	8	0.83		
SO	Verbal: English	Self-efficacy	DESI	9	2	05/04 to 07/04	slfeffe2	8	0.88	1	8
OO	General	Big Five: Agreeableness	NEPS-SC3	7	3	11/12 to 06/13	t66800b_g1	3	0.39		
OO	General	Big Five: Agreeableness	NEPS-SC3	9	5	11/14 to 01/15	t66800b_g1	3	0.38	3	21
OO	General	Big Five: Agreeableness	NEPS-SC4	9	1	11/10 to 01/11	t66800b_g1	3	0.38		

(Table continues)

Table A2.1 *(continued)*

Domain	Context	Measure	Study	Grade	Wave	Assessment period (MM/YY)	Variable	N items	Reliability	Pretest wave	Time lag
OO	General	Big Five: Extraversion	NEPS-SC3	7	3	11/12 to 06/13	t66800a_g1	2	0.40		
OO	General	Big Five: Extraversion	NEPS-SC3	9	5	11/14 to 01/15	t66800a_g1	2	0.61	3	21
OO	General	Big Five: Extraversion	NEPS-SC4	9	1	11/10 to 01/11	t66800a_g1	2	0.63		
OO	General	ICQ: Ability to deal with conflict	NEPS-SC3	12	9	10/17 to 06/18	t67808a_g1	5	0.69		
OO	General	ICQ: Ability to deal with conflict	NEPS-SC4	12	7	11/13 to 01/14	t67808a_g1	5	0.66		
OO	General	ICQ: Ability to deal with conflict	NEPS-SC4	13	8	11/14 to 01/15	t67808a_g1	5	0.70	7	12
OO	General	ICQ: Assertiveness	NEPS-SC3	12	9	10/17 to 06/18	t67807a_g1	5	0.74		
OO	General	ICQ: Assertiveness	NEPS-SC4	12	7	11/13 to 01/14	t67807a_g1	5	0.74		
OO	General	ICQ: Assertiveness	NEPS-SC4	13	8	11/14 to 01/15	t67807a_g1	5	0.75	7	12
OO	General	SDQ: Problem behavior	NEPS-SC3	6	2	11/11 to 01/12	t67801c_g1	5	0.58		
OO	General	SDQ: Problem behavior	NEPS-SC3	9	6	04/15 to 07/15	t67801c_g1	5	0.56	2	41
OO	General	SDQ: Problem behavior	NEPS-SC4	9	2	05/11 to 07/11	t67801c_g1	5	0.55		
OO	General	SDQ: Prosocial behavior	NEPS-SC3	6	2	11/11 to 01/12	t67801a_g1	5	0.71		
OO	General	SDQ: Prosocial behavior	NEPS-SC3	9	6	04/15 to 07/15	t67801a_g1	5	0.67	2	41
OO	General	SDQ: Prosocial behavior	NEPS-SC4	9	2	05/11 to 07/11	t67801a_g1	5	0.66		
OO	School	Academic support for classmates	IQB Trends	4		05/16 to 07/16	sauvm	3	0.84		
OO	School	Academic support from classmates	IQB Trends	4		05/16 to 07/16	saudm	3	0.82		
OO	School	Sense of belonging to school	PISA 2012	9		03/12 to 06/12	belong	9	0.85		
OO	School	Social integration	IQB Trends	4		05/16 to 07/16	ssoe	4	0.69		
OO	School	Victimization	IQB Trends	4		05/16 to 07/16	svikt	6	0.85		
TO	General	Big Five: Openness	NEPS-SC3	7	3	11/12 to 06/13	t66800e_g1	2	0.36		
TO	General	Big Five: Openness	NEPS-SC3	9	5	11/14 to 01/15	t66800e_g1	2	0.47	3	21
TO	General	Big Five: Openness	NEPS-SC4	9	1	11/10 to 01/11	t66800e_g1	2	0.42		
TO	General	RIASEC: Artistic interests (IILS)	NEPS-SC2	4	6	10/15 to 04/16	t66206c_g1	3	0.65		
TO	General	RIASEC: Artistic interests (IILS)	NEPS-SC3	6	2	11/11 to 01/12	t66206c_g1	3	0.65		
TO	General	RIASEC: Artistic interests (IILS)	NEPS-SC3	9	6	04/15 to 07/15	t66207c_g1	3	0.69	2	41
TO	General	RIASEC: Artistic interests (IILS)	NEPS-SC3	12	9	10/17 to 06/18	t66207c_g1	3	0.71	6	33

(Table continues)

Table A2.1 *(continued)*

Domain	Context	Measure	Study	Grade	Wave	Assessment period (MM/YY)	Variable	N items	Reliability	Pretest wave	Time lag
TO	General	RIASEC: Artistic interests (IILS)	NEPS-SC4	9	2	05/11 to 07/11	t66207c_g1	3	0.69		
TO	General	RIASEC: Artistic interests (IILS)	NEPS-SC4	12	7	11/13 to 01/14	t66207c_g1	3	0.65	2	30
TO	General	RIASEC: Artistic interests (IILS)	NEPS-SC4	13	8	11/14 to 01/15	t66207c_g1	3	0.65	7	12
TO	General	RIASEC: Conventional interests (IILS)	NEPS-SC2	4	6	10/15 to 04/16	t66206f_g1	3	0.56		
TO	General	RIASEC: Conventional interests (IILS)	NEPS-SC3	6	2	11/11 to 01/12	t66206f_g1	3	0.54		
TO	General	RIASEC: Conventional interests (IILS)	NEPS-SC3	9	6	04/15 to 07/15	t66207f_g1	3	0.58	2	41
TO	General	RIASEC: Conventional interests (IILS)	NEPS-SC3	12	9	10/17 to 06/18	t66207f_g1	3	0.57	6	33
TO	General	RIASEC: Conventional interests (IILS)	NEPS-SC4	9	2	05/11 to 07/11	t66207f_g1	3	0.58		
TO	General	RIASEC: Conventional interests (IILS)	NEPS-SC4	12	7	11/13 to 01/14	t66207f_g1	3	0.59	2	30
TO	General	RIASEC: Conventional interests (IILS)	NEPS-SC4	13	8	11/14 to 01/15	t66207f_g1	3	0.58	7	12
TO	General	RIASEC: Enterprising interests (IILS)	NEPS-SC2	4	6	10/15 to 04/16	t66206e_g1	3	0.57		
TO	General	RIASEC: Enterprising interests (IILS)	NEPS-SC3	6	2	11/11 to 01/12	t66206e_g1	3	0.62		
TO	General	RIASEC: Enterprising interests (IILS)	NEPS-SC3	9	6	04/15 to 07/15	t66207e_g1	3	0.49	2	41
TO	General	RIASEC: Enterprising interests (IILS)	NEPS-SC3	12	9	10/17 to 06/18	t66207e_g1	3	0.59	6	33
TO	General	RIASEC: Enterprising interests (IILS)	NEPS-SC4	9	2	05/11 to 07/11	t66207e_g1	3	0.50		
TO	General	RIASEC: Enterprising interests (IILS)	NEPS-SC4	12	7	11/13 to 01/14	t66207e_g1	3	0.58	2	30
TO	General	RIASEC: Enterprising interests (IILS)	NEPS-SC4	13	8	11/14 to 01/15	t66207e_g1	3	0.57	7	12
TO	General	RIASEC: Investigative interests (IILS)	NEPS-SC2	4	6	10/15 to 04/16	t66206b_g1	3	0.64		
TO	General	RIASEC: Investigative interests (IILS)	NEPS-SC3	6	2	11/11 to 01/12	t66206b_g1	3	0.64		
TO	General	RIASEC: Investigative interests (IILS)	NEPS-SC3	9	6	04/15 to 07/15	t66207b_g1	3	0.67	2	41
TO	General	RIASEC: Investigative interests (IILS)	NEPS-SC3	12	9	10/17 to 06/18	t66207b_g1	3	0.70	6	33
TO	General	RIASEC: Investigative interests (IILS)	NEPS-SC4	9	2	05/11 to 07/11	t66207b_g1	3	0.69		
TO	General	RIASEC: Investigative interests (IILS)	NEPS-SC4	12	7	11/13 to 01/14	t66207b_g1	3	0.68	2	30
TO	General	RIASEC: Investigative interests (IILS)	NEPS-SC4	13	8	11/14 to 01/15	t66207b_g1	3	0.71	7	12
TO	General	RIASEC: Realistic interests (IILS)	NEPS-SC2	4	6	10/15 to 04/16	t66206a_g1	3	0.61		
TO	General	RIASEC: Realistic interests (IILS)	NEPS-SC3	6	2	11/11 to 01/12	t66206a_g1	3	0.68		
TO	General	RIASEC: Realistic interests (IILS)	NEPS-SC3	9	6	04/15 to 07/15	t66207a_g1	3	0.70	2	41
TO	General	RIASEC: Realistic interests (IILS)	NEPS-SC3	12	9	10/17 to 06/18	t66207a_g1	3	0.72	6	33

(Table continues)

Table A2.1 *(continued)*

Domain	Context	Measure	Study	Grade	Wave	Assessment period (MM/YY)	Variable	N items	Reliability	Pretest wave	Time lag
TO	General	RIASEC: Realistic interests (IILS)	NEPS-SC4	9	2	05/11 to 07/11	t66207a_g1	3	0.72		
TO	General	RIASEC: Realistic interests (IILS)	NEPS-SC4	12	7	11/13 to 01/14	t66207a_g1	3	0.74	2	30
TO	General	RIASEC: Realistic interests (IILS)	NEPS-SC4	13	8	11/14 to 01/15	t66207a_g1	3	0.71	7	12
TO	General	RIASEC: Social interests (IILS)	NEPS-SC2	4	6	10/15 to 04/16	t66206d_g1	3	0.71		
TO	General	RIASEC: Social interests (IILS)	NEPS-SC3	6	2	11/11 to 01/12	t66206d_g1	3	0.76		
TO	General	RIASEC: Social interests (IILS)	NEPS-SC3	9	6	04/15 to 07/15	t66207d_g1	3	0.76	2	41
TO	General	RIASEC: Social interests (IILS)	NEPS-SC3	12	9	10/17 to 06/18	t66207d_g1	3	0.78	6	33
TO	General	RIASEC: Social interests (IILS)	NEPS-SC4	9	2	05/11 to 07/11	t66207d_g1	3	0.77		
TO	General	RIASEC: Social interests (IILS)	NEPS-SC4	12	7	11/13 to 01/14	t66207d_g1	3	0.77	2	30
TO	General	RIASEC: Social interests (IILS)	NEPS-SC4	13	8	11/14 to 01/15	t66207d_g1	3	0.76	7	12
TO	General	TenFlex: Flexibility	NEPS-SC3	10	7	10/15 to 05/16	t67000a_g1	5	0.70		
TO	General	TenFlex: Flexibility	NEPS-SC4	10	3	03/12 to 05/12	t67000a_g1	5	0.68		
TO	General	TenFlex: Persistence	NEPS-SC3	10	7	10/15 to 05/16	t67001a_g1	5	0.70		
TO	General	TenFlex: Persistence	NEPS-SC4	10	3	03/12 to 05/12	t67001a_g1	5	0.69		
TO	School	Achievement-related learning motivation	PISA 2012	9		03/12 to 06/12	atschl	4	0.68		
TO	School	Achievement-related learning motivation	NEPS-SC3	8	4	11/13 to 02/14	t66402a_g1	4	0.79		
TO	School	Achievement-related learning motivation	NEPS-SC3	11	8	10/16 to 04/17	t66402a_g1	4	0.77	4	37
TO	School	Achievement-related learning motivation	NEPS-SC4	11	5	11/12 to 01/13	t66402a_g1	4	0.77		
TO	School	Competitive learning motivation	NEPS-SC3	8	4	11/13 to 02/14	t66403a_g1	4	0.85		
TO	School	Competitive learning motivation	NEPS-SC3	11	8	10/16 to 04/17	t66403a_g1	4	0.84	4	37
TO	School	Competitive learning motivation	NEPS-SC4	11	5	11/12 to 01/13	t66403a_g1	4	0.84		
TO	School	Effort	NEPS-SC2	3	5	10/14 to 04/15	tEffort*	4	0.46		
TO	School	Effort	NEPS-SC2	4	6	10/15 to 04/16	tEffort*	4	0.56	5	12
TO	School	Enjoyment of learning	NEPS-SC2	3	5	10/14 to 04/15	tEnjLearn*	3	0.88		
TO	School	Enjoyment of learning	NEPS-SC2	4	6	10/15 to 04/16	tEnjLearn*	3	0.90	5	12
TO	School	Intrinsic value German	NEPS-SC4	11	5	11/12 to 01/13	t66400a_g1	4	0.89		
TO	School	Intrinsic value math	NEPS-SC4	11	5	11/12 to 01/13	t66401a_g1	4	0.91		

(Table continues)

Table A2.1 *(continued)*

Domain	Context	Measure	Study	Grade	Wave	Assessment period (MM/YY)	Variable	N items	Reliability	Pretest wave	Time lag
TO	School	Job-related learning motivation	NEPS-SC3	8	4	11/13 to 02/14	t66404a_g1	4	0.82		
TO	School	Job-related learning motivation	NEPS-SC3	11	8	10/16 to 04/17	t66404a_g1	4	0.85	4	37
TO	School	Job-related learning motivation	NEPS-SC4	11	5	11/12 to 01/13	t66404a_g1	4	0.84		
TO	School	Mastery-related learning motivation	PISA 2012	9		03/12 to 06/12	attlnact	4	0.67		
TO	School	Openness for problem solving	PISA 2012	9		03/12 to 06/12	openps	5	0.81		
TO	School	Perseverance	PISA 2012	9		03/12 to 06/12	persev	5	0.71		
TO	School	Satisfaction with school	IQB Trends	4		05/16 to 07/16	salgsf	4	0.84		
TO	Mathematics	Attributions to failure	PISA 2012	9		03/12 to 06/12	failmat	8	0.64		
TO	Mathematics	Boredom	IQB Trends	4		05/16 to 07/16	sulanm	3	0.80		
TO	Mathematics	Boredom	PISA 2003	9	1	04/03 to 05/03	bo_w	n/a	0.86		
TO	Mathematics	Boredom	PISA 2003	10	2	05/04	bo_t2	n/a	0.86	1	12
TO	Mathematics	Effort	PISA 2003	9	1	04/03 to 05/03	effor_w	n/a	0.78		
TO	Mathematics	Effort	PISA 2003	10	2	05/04	effor_t2	n/a	0.79	1	12
TO	Mathematics	Enjoyment	PISA 2003	9	1	04/03 to 05/03	jo_w_imp	6	0.91		
TO	Mathematics	Enjoyment	PISA 2003	10	2	05/04	jo_t2	6	0.91	1	12
TO	Mathematics	Instrumental value	PISA 2003	9	1	04/03 to 05/03	instmo_w_imp	n/a	0.82		
TO	Mathematics	Instrumental value	PISA 2003	10	2	05/04	inst_t2	n/a	0.83	1	12
TO	Mathematics	Instrumental value	PISA 2012	9		03/12 to 06/12	instmot	4	0.84		
TO	Mathematics	Interest	IQB Trends	4		05/16 to 07/16	sinm	4	0.88		
TO	Mathematics	Interest	PISA 2003	9	1	04/03 to 05/03	intmat_w_imp	n/a	0.86		
TO	Mathematics	Interest	PISA 2003	10	2	05/04	intma_t2	n/a	0.86	1	12
TO	Mathematics	Interest	PISA 2012	9		03/12 to 06/12	intmat	4	0.89		
TO	Mathematics	Interest	NEPS-SC3	6	2	11/11 to 01/12	t66201a_g1	4	0.76		
TO	Mathematics	Interest	NEPS-SC3	9	6	04/15 to 07/15	t66201a_g1	4	0.85	2	41
TO	Mathematics	Interest	NEPS-SC4	9	2	05/11 to 07/11	t66201a_g1	4	0.85		
TO	Mathematics	Intrinsic value	IQB Trends	4		05/16 to 07/16	slfm	3	0.89		
TO	Mathematics	Intrinsic value	NEPS-SC3	8	4	11/13 to 02/14	t66401a_g1	4	0.92		
TO	Mathematics	Intrinsic value	NEPS-SC3	11	8	10/16 to 04/17	t66401a_g1	4	0.91	4	37

(Table continues)

Table A2.1 *(continued)*

Domain	Context	Measure	Study	Grade	Wave	Assessment period (MM/YY)	Variable	N items	Reliability	Pretest wave	Time lag
TO	Mathematics	Work ethic	PISA 2012	9		03/12 to 06/12	matwketh	9	0.87		
TO	Science	Enjoyment	PISA 2006	9		05/06 to 06/06	joyscie_wle	5	0.89		
TO	Science	Future-related motivation	PISA 2006	9		05/06 to 06/06	sciefut_wle	4	0.81		
TO	Science	Interest	PISA 2006	9		05/06 to 06/06	intscie_wle	8	0.76		
TO	Science	Instrumental value	PISA 2006	9		05/06 to 06/06	instscie_wle	5	0.85		
TO	Science	Personal value	PISA 2006	9		05/06 to 06/06	perscie_wle	5	0.75		
TO	ICT	Attitude	PISA 2009	9		04/09 to 05/09	attcomp		n/a		
TO	ICT	Computer interest	NEPS-SC2	3	5	10/14 to 04/15	tICTInt*	3	0.73		
TO	ICT	Computer value	NEPS-SC2	3	5	10/14 to 04/15	tICTVal*	3	0.65		
TO	Verbal: German	Attitude towards German	DESI	9	2	05/04 to 07/04	einstfd2	6	0.78		
TO	Verbal: German	Attitude towards reading	DESI	9	1	09/03 to 10/03	lesintg1	13	0.93		
TO	Verbal: German	Attitude towards reading	DESI	9	2	05/04 to 07/04	lesintg2	13	0.93	1	8
TO	Verbal: German	Attitude towards reading	PISA 2009	9		04/09 to 05/09	einles_st	9	0.88		
TO	Verbal: German	Boredom	IQB Trends	4		05/16 to 07/16	suland	3	0.83		
TO	Verbal: German	Enjoyment of reading	PISA 2009	9		04/09 to 05/09	joyread	11	0.92		
TO	Verbal: German	Enjoyment of reading	NEPS-SC3	5	1	10/10 to 01/11	tGEnjRead*	6	0.89		
TO	Verbal: German	Enjoyment of reading	NEPS-SC3	6	2	11/11 to 01/12	tGEnjRead*	6	0.90	1	12
TO	Verbal: German	Enjoyment of reading	NEPS-SC3	7	3	11/12 to 06/13	tGEnjRead*	6	0.90	2	15
TO	Verbal: German	Enjoyment of reading	NEPS-SC3	8	4	11/13 to 02/14	tGEnjRead*	6	0.86	3	9
TO	Verbal: German	Enjoyment of reading	NEPS-SC3	9	5	11/14 to 01/15	tGEnjRead*	6	0.89	4	12
TO	Verbal: German	Enjoyment of reading	NEPS-SC3	9	6	04/15 to 07/15	tGEnjRead*	6	0.92	5	5
TO	Verbal: German	Expectancy for success	DESI	9	1	09/03 to 10/03	sew_d/sew_d1	3	0.81		
TO	Verbal: German	Interest	IQB Trends	4		05/16 to 07/16	sind	4	0.83		
TO	Verbal: German	Interest	NEPS-SC3	6	2	11/11 to 01/12	t66208a_g1	4	0.74		
TO	Verbal: German	Interest	NEPS-SC3	9	6	04/15 to 07/15	t66208a_g1	4	0.84	2	41
TO	Verbal: German	Interest	NEPS-SC4	9	2	05/11 to 07/11	t66208a_g1	4	0.83		

(Table continues)

Table A2.1 *(continued)*

Domain	Context	Measure	Study	Grade	Wave	Assessment period (MM/YY)	Variable	N items	Reliability	Pretest wave	Time lag
TO	Verbal: German	Intrinsic value	IQB Trends	4		05/16 to 07/16	slfd	3	0.84		
TO	Verbal: German	Intrinsic value	NEPS-SC3	8	4	11/13 to 02/14	t66400a_g1	4	0.87		
TO	Verbal: German	Intrinsic value	NEPS-SC3	11	8	10/16 to 04/17	t66400a_g1	4	0.90	4	37
TO	Verbal: German	Reading interest	PISA 2009	9		04/09 to 05/09	leseinteresse	3	0.89		
TO	Verbal: English	Attitude towards English	DESI	9	1	09/03 to 10/03	einstfe1	6	0.79		
TO	Verbal: English	Attitude towards English	DESI	9	2	05/04 to 07/04	einstfe2	6	0.81	1	8
TO	Verbal: English	Enjoyment of reading	DESI	9	1	09/03 to 10/03	lesen_e1	9	0.79		
TO	Verbal: English	Enjoyment of reading	DESI	9	2	05/04 to 07/04	lesen_e2	9	0.82	1	8
TO	Verbal: English	Expectancy for success	DESI	9	1	09/03 to 10/03	sew_e/sew_e1	3	0.85		
TO	Verbal: English	Interest in reading	DESI	9	1	09/03 to 10/03	leseint1	3	0.85		
TO	Verbal: English	Interest in reading	DESI	9	2	05/04 to 07/04	leseint2	3	0.88	1	8

Note. SO = Self-orientation. OO = Other-orientation. TO = Task-orientation. Information on the assessment period was retrieved from Beck et al. (2008) for DESI; Rjosk et al. (2017) for IQB Trends; FDZ-LIfBi (2024a, 2024b, 2024c) for NEPS-SC2, NEPS-SC3, and NEPS-SC4, respectively; Walter et al. (2006) for PISA 2003; Prenzel et al. (2008) for PISA 2006; Jude and Klieme (2010) for PISA 2009; and Sälzer and Prenzel (2013) for PISA 2012. Variables marked with a star represent mean scales generated by the authors. Reliabilities for all measures from NEPS-SC2, NEPS-SC3, and NEPS-SC4, as well as for mathematics enjoyment from PISA 2003 (i.e., "jo_w_imp", "jo_t2") were calculated in R (R Core Team, 2025) using the R package psych (Revelle, 2025). The remaining reliabilities were extracted from Wagner et al. (2009) for DESI; Schipolowski et al. (2019) for IQB Trends; Frenzel et al. (2006) for PISA 2003; Frey et al. (2009) for PISA 2006; Hertel et al. (2014) for PISA 2009; and Mang et al. (2018) for PISA 2012. Time lag between pre- and posttest in months. Cells with n/a indicate that information were not reported.

Table A2.2

SEL Measures Analyzed in the Present Study: Parent Ratings

Domain	Context	Measure	Study	Grade	Wave	Assessment period (MM/YY)	Variable	N items	Reliability	Pretest wave	Time lag
SO	General	Big Five: Conscientiousness	NEPS-SC2	2	4	02/14 to 05/14	p66802b_g1	2	0.54		
SO	General	Big Five: Conscientiousness	NEPS-SC3	7	3	02/13 to 05/13	p66802b_g1	2	0.58		
SO	General	Big Five: Conscientiousness	NEPS-SC3	9	6	03/15 to 06/15	p66802b_g1	2	0.54	3	24
SO	General	Big Five: Neuroticism	NEPS-SC2	2	4	02/14 to 05/14	p66802e_g1	2	0.51		
SO	General	Big Five: Neuroticism	NEPS-SC3	7	3	02/13 to 05/13	p66802e_g1	2	0.48		
SO	General	Big Five: Neuroticism	NEPS-SC3	9	6	03/15 to 06/15	p66802e_g1	2	0.50	3	24
OO	General	Big Five: Agreeableness	NEPS-SC2	2	4	02/14 to 05/14	p66802c_g1	2	0.44		
OO	General	Big Five: Agreeableness	NEPS-SC3	7	3	02/13 to 05/13	p66802c_g1	2	0.45		
OO	General	Big Five: Agreeableness	NEPS-SC3	9	6	03/15 to 06/15	p66802c_g1	2	0.45	3	24
OO	General	Big Five: Extraversion	NEPS-SC2	2	4	02/14 to 05/14	p66802a_g1	2	0.72		
OO	General	Big Five: Extraversion	NEPS-SC3	7	3	02/13 to 05/13	p66802a_g1	2	0.71		
OO	General	Big Five: Extraversion	NEPS-SC3	9	6	03/15 to 06/15	p66802a_g1	2	0.74	3	24
OO	General	SDQ: Problem behavior	NEPS-SC2	3	5	03/15 to 06/15	p67801c_g1	5	0.59		
OO	General	SDQ: Problem behavior	NEPS-SC3	6	2	02/12 to 05/12	p67801c_g1	5	0.62		
OO	General	SDQ: Problem behavior	NEPS-SC3	9	6	03/15 to 06/15	p67801c_g1	5	0.59	2	36
OO	General	SDQ: Prosocial behavior	NEPS-SC2	3	5	03/15 to 06/15	p67801a_g1	5	0.60		
OO	General	SDQ: Prosocial behavior	NEPS-SC3	6	2	02/12 to 05/12	p67801a_g1	5	0.57		
OO	General	SDQ: Prosocial behavior	NEPS-SC3	9	6	03/15 to 06/15	p67801a_g1	5	0.58	2	36
OO	General	SDQ: Prosocial behavior	NEPS-SC4	9	1	01/11 to 07/11	p67801a_g1	5	0.58		
OO	General	TASB: Disruptive behavior	NEPS-SC2	2	4	02/14 to 05/14	p67802a_g1	3	0.72		
OO	School	Social integration	NEPS-SC2	1	3	05/13 to 10/13	pSocInt*	3	0.64		
OO	School	Social integration	NEPS-SC2	2	4	02/14 to 05/14	pSocInt*	3	0.61	3	9
OO	School	Social integration	NEPS-SC3	6	2	02/12 to 05/12	pSocInt*	3	0.66		
OO	School	Social integration	NEPS-SC3	7	3	02/13 to 05/13	pSocInt*	3	0.65	2	12
OO	School	Social integration	NEPS-SC3	8	4	01/14 to 05/14	pSocInt*	3	0.63	3	11

(Table continues)

Table A2.2 *(continued)*

Domain	Context	Measure	Study	Grade	Wave	Assessment period (MM/YY)	Variable	N items	Reliability	Pretest wave	Time lag
TO	General	Big Five: Openness	NEPS-SC2	2	4	02/14 to 05/14	p66802d_g1	2	0.59		
TO	General	Big Five: Openness	NEPS-SC3	7	3	02/13 to 05/13	p66802d_g1	2	0.63		
TO	General	Big Five: Openness	NEPS-SC3	9	6	03/15 to 06/15	p66802d_g1	2	0.67	3	24
TO	General	RIASEC: Artistic interests (IILS)	NEPS-SC4	12	7	01/14 to 05/14	p66207c_g1	3	0.66		
TO	General	RIASEC: Conventional interests (IILS)	NEPS-SC4	12	7	01/14 to 05/14	p66207f_g1	3	0.59		
TO	General	RIASEC: Enterprising interests (IILS)	NEPS-SC4	12	7	01/14 to 05/14	p66207e_g1	3	0.60		
TO	General	RIASEC: Investigative interests (IILS)	NEPS-SC4	12	7	01/14 to 05/14	p66207b_g1	3	0.67		
TO	General	RIASEC: Realistic interests (IILS)	NEPS-SC4	12	7	01/14 to 05/14	p66207a_g1	3	0.65		
TO	General	RIASEC: Social interests (IILS)	NEPS-SC4	12	7	01/14 to 05/14	p66207d_g1	3	0.68		
TO	School	Autonomy	NEPS-SC2	1	3	05/13 to 10/13	pIndep*	3	0.77		
TO	School	Autonomy	NEPS-SC2	2	4	02/14 to 05/14	pIndep*	3	0.78	3	9
TO	School	Autonomy	NEPS-SC3	6	2	02/12 to 05/12	pIndep*	3	0.72		
TO	School	Autonomy	NEPS-SC3	7	3	02/13 to 05/13	pIndep*	3	0.70	2	12
TO	School	Autonomy	NEPS-SC3	8	4	01/14 to 05/14	pIndep*	3	0.68	3	11
TO	School	Effort	NEPS-SC2	1	3	05/13 to 10/13	pEffort*	4	0.70		
TO	School	Effort	NEPS-SC2	2	4	02/14 to 05/14	pEffort*	4	0.72	3	9
TO	School	Effort	NEPS-SC2	3	5	03/15 to 06/15	pEffort*	4	0.72	4	12
TO	School	Effort	NEPS-SC2	4	6	02/16 to 06/16	pEffort*	4	0.73	5	12
TO	School	Enjoyment of learning	NEPS-SC2	1	3	05/13 to 10/13	pEnjLearn*	3	0.82		
TO	School	Enjoyment of learning	NEPS-SC2	2	4	02/14 to 05/14	pEnjLearn*	3	0.84	3	9
TO	School	Enjoyment of learning	NEPS-SC2	3	5	03/15 to 06/15	pEnjLearn*	3	0.84	4	12
TO	School	Enjoyment of learning	NEPS-SC2	4	6	02/16 to 06/16	pEnjLearn*	3	0.84	5	12
TO	School	Willingness to learn and perform	IQB Trends	4		05/16 to 07/16	elernb	5	0.86		

Note. SO = Self-orientation. OO = Other-orientation. TO = Task-orientation. Information on the assessment period was retrieved from Rjosk et al. (2017) for IQB Trends; and FDZ-LIfBi (2024a, 2024b, 2024c) for NEPS-SC2, NEPS-SC3, and NEPS-SC4, respectively. Variables marked with a star represent mean scales generated by the authors. Reliabilities for all measures from NEPS-SC2, NEPS-SC3, and NEPS-SC4 were calculated in R (R Core Team, 2025) using the R package psych (Revelle, 2025). The reliability for IQB Trends was extracted from Schipolowski et al. (2019). Time lag between pre- and posttest in months.

Table A2.3

SEL Measures Analyzed in the Present Study: Teacher Ratings

Domain	Context	Measure	Study	Grade	Wave	Assessment period (MM/YY)	Variable	N items	Reliability	Pretest wave	Time lag
SO	General	Big Five: Conscientiousness	NEPS-SC2	3	5	10/14 to 03/15	e66800b_g1	2	0.70		
SO	General	Big Five: Neuroticism	NEPS-SC2	3	5	10/14 to 03/15	e66800e_g1	2	0.70		
OO	General	Big Five: Agreeableness	NEPS-SC2	3	5	10/14 to 03/15	e66800c_g1	2	0.77		
OO	General	Big Five: Extraversion	NEPS-SC2	3	5	10/14 to 03/15	e66800a_g1	2	0.77		
OO	General	SDQ: Problem behavior	NEPS-SC2	3	5	10/14 to 03/15	e67801c_g1	5	0.75		
OO	General	SDQ: Prosocial behavior	NEPS-SC2	3	5	10/14 to 03/15	e67801a_g1	5	0.85		
OO	General	TASB: Disruptive behavior	NEPS-SC2	2	4	11/13 to 01/14	e67802a_g1	3	0.92		
TO	General	Big Five: Openness	NEPS-SC2	3	5	10/14 to 03/15	e66800d_g1	2	0.78		
TO	School	Effort	NEPS-SC2	1	3	01/13 to 09/13	eEffort*	4	0.83		
TO	School	Enjoyment of learning	NEPS-SC2	1	3	01/13 to 09/13	eEnjLearn*	2	0.78		

Note. SO = Self-orientation. OO = Other-orientation. TO = Task-orientation. Information on the assessment period was retrieved from FDZ-LIfBi (2024a). Variables marked with a star represent mean scales generated by the authors. Reliabilities were calculated in R (R Core Team, 2025) using the R package psych (Revelle, 2025). Time lag between pre- and posttest in months.

A3   Missing Data

Tables A3.1 to A3.7 report the missing data statistics per variable, as well as the overall missingness in each grade-/wave-specific analysis sample.

As noted in the main manuscript, we applied a multiple imputation approach involving adjusted cluster-means to properly account for the multilevel data structure (Grund, Lüdtke, et al., 2023). The imputation models were aligned with the single- and multilevel models used to estimate design parameters. We pooled the design parameter estimates and their variances across the 50 imputed datasets using the R package `mitml` (Grund, Robitzsch, et al., 2023), which implements Rubin's (1987) rules, thereby appropriately reflecting both within- and between-imputation variance in the resulting standard errors.

Table A3.1
Percentages of Missing Data for DESI

Method	Domain	Context	Measure	Grade	Wave	Variable	Analysis sample of Grade	
							9/1	9/2
Student	SO	Verbal: German	Self-concept	9	1	fskud1	52.24	54.87
Student	SO	Verbal: German	Self-concept	9	2	fskud2		53.93
Student	SO	Verbal: German	Self-concept advanced skills	9	1	fskewd1	51.96	54.60
Student	SO	Verbal: German	Self-concept advanced skills	9	2	fskewd2		54.27
Student	SO	Verbal: German	Self-concept basic skills	9	1	fskeld1	51.85	54.51
Student	SO	Verbal: German	Self-concept basic skills	9	2	fskeld2		54.25
Student	SO	Verbal: German	Self-efficacy	9	1	slfeffd1	51.72	54.38
Student	SO	Verbal: German	Self-efficacy	9	2	slfeffd2		12.41
Student	SO	Verbal: English	Self-concept	9	1	fskue1	51.48	54.15
Student	SO	Verbal: English	Self-concept	9	2	fskue2		54.71
Student	SO	Verbal: English	Self-concept advanced skills	9	1	fskkoe1	51.43	54.10
Student	SO	Verbal: English	Self-concept advanced skills	9	2	fskkoe2		55.08
Student	SO	Verbal: English	Self-efficacy	9	1	slfeffe1	51.52	54.19
Student	SO	Verbal: English	Self-efficacy	9	2	slfeffe2		13.85
Student	TO	Verbal: German	Attitude towards German	9	2	einstfd2		11.89
Student	TO	Verbal: German	Attitude towards reading	9	1	lesintg1	51.04	53.74
Student	TO	Verbal: German	Attitude towards reading	9	2	lesintg2		54.51
Student	TO	Verbal: German	Expectancy for success	9	1	sew_d	52.29	54.92
Student	TO	Verbal: English	Attitude towards English	9	1	einstfe1	51.39	54.07
Student	TO	Verbal: English	Attitude towards English	9	2	einstfe2		12.93
Student	TO	Verbal: English	Enjoyment of reading	9	1	lesen_e1	51.44	54.11
Student	TO	Verbal: English	Enjoyment of reading	9	2	lesen_e2		55.07
Student	TO	Verbal: English	Expectancy for success	9	1	sew_e	51.88	54.54
Student	TO	Verbal: English	Interest in reading	9	1	leseint1	1.69	7.11
Student	TO	Verbal: English	Interest in reading	9	2	leseint2		10.76

(Table continues)

Table A3.1 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Variable	Analysis sample of Grade	
							9/1	9/2
			Age			age	0.00	0.05
			Gender			gender	0.00	0.00
			Migration background			mig	1.45	2.47
			HISEI			hisei	35.60	36.21
			Educational attainment			hiedu	30.50	31.15
Total sparseness							38.30	39.09

Note. The table can be read as follows, e.g., first row: For the analysis samples of grade 9 (first half-year) and grade 9 (second half-year), the percentage of missing values in German self-concept assessed in wave 1 (i.e., variable "fskud1") was 52.24% and 54.87%, respectively. SO = Self-orientation. OO = Other-orientation. TO = Task-orientation. HISEI = Highest International Socio-Economic Index of Occupational Status (Ganzeboom & Treiman, 1996).

Table A3.2

Percentages of Missing Data for IQB Trends 2016

Method	Domain	Context	Measure	Grade	Wave	Variable	Analysis sample of Grade 4
Student	SO	General	Self-esteem	4		sswert	65.28
Student	SO	Mathematics	Anxiety	4		sanm	39.31
Student	SO	Mathematics	Self-concept	4		sskma16	35.38
Student	SO	Verbal: German	Anxiety	4		sand	39.36
Student	SO	Verbal: German	Self-concept	4		sskde16	35.31
Student	OO	School	Academic support for classmates	4		sauvm	35.65
Student	OO	School	Academic support from classmates	4		saudm	35.73
Student	OO	School	Social integration	4		ssoe	4.36
Student	OO	School	Victimization	4		svikt	42.65
Student	TO	School	Satisfaction with school	4		salgsf	34.11
Student	TO	Mathematics	Boredom	4		sulanm	39.27
Student	TO	Mathematics	Interest	4		sinm	35.40
Student	TO	Mathematics	Intrinsic value	4		slfm	39.31
Student	TO	Verbal: German	Boredom	4		suland	39.30
Student	TO	Verbal: German	Interest	4		sind	35.61
Student	TO	Verbal: German	Intrinsic value	4		slfd	39.43
Parent	TO	School	Willingness to learn and perform	4		elernb	22.64
			Age			age	0.16
			Gender			gender	0.17
			Migration background			mig	3.32
			HISEI			hisei	25.34
			Educational attainment			hiedu	23.11
Total sparseness							30.46

Note. The table can be read as follows, e.g., first row: For the analysis sample of grade 4, the percentage of missing values in self-esteem (i.e., variable "sswert") was 65.28%.
SO = Self-orientation. OO = Other-orientation. TO = Task-orientation. HISEI = Highest International Socio-Economic Index of Occupational Status (Ganzeboom & Treiman, 1996).

Table A3.3
Percentages of Missing Data for NEPS-SC2

Method	Domain	Context	Measure	Grade	Wave	Variable	Analysis sample of Grade			
							1	2	3	4
Student	SO	ICT	Computer self-concept	3	5	tICTSC			13.09	13.02
Student	TO	General	RIASEC: Artistic interests (IILS)	4	6	t66206c_g1				10.77
Student	TO	General	RIASEC: Conventional interests (IILS)	4	6	t66206f_g1				10.18
Student	TO	General	RIASEC: Enterprising interests (IILS)	4	6	t66206e_g1				11.19
Student	TO	General	RIASEC: Investigative interests (IILS)	4	6	t66206b_g1				9.40
Student	TO	General	RIASEC: Realistic interests (IILS)	4	6	t66206a_g1				8.46
Student	TO	General	RIASEC: Social interests (IILS)	4	6	t66206d_g1				11.02
Student	TO	School	Effort	3	5	tEffort			6.92	6.78
Student	TO	School	Effort	4	6	tEffort				6.11
Student	TO	School	Enjoyment of learning	3	5	tEnjLearn			7.38	7.26
Student	TO	School	Enjoyment of learning	4	6	tEnjLearn				6.30
Student	TO	ICT	Computer interest	3	5	tICTInt			12.45	12.37
Student	TO	ICT	Computer value	3	5	tICTVal			12.90	13.00
Parent	SO	General	Big Five: Conscientiousness	2	4	p66802b_g1		22.74	21.18	21.88
Parent	SO	General	Big Five: Neuroticism	2	4	p66802e_g1		22.84	21.25	21.94
Parent	OO	General	Big Five: Agreeableness	2	4	p66802c_g1		23.26	21.65	22.35
Parent	OO	General	Big Five: Extraversion	2	4	p66802a_g1		22.76	21.20	21.88
Parent	OO	General	SDQ: Problem behavior	3	5	p67801c_g1			30.69	30.80
Parent	OO	General	SDQ: Prosocial behavior	3	5	p67801a_g1			30.26	30.36
Parent	OO	General	TASB: Disruptive behavior	2	4	p67802a_g1		23.42	21.87	22.51
Parent	OO	School	Social integration	1	3	pSocInt	14.49	14.79	15.00	15.53
Parent	OO	School	Social integration	2	4	pSocInt		22.73	21.16	21.85
Parent	TO	General	Big Five: Openness	2	4	p66802d_g1		22.82	21.24	21.96
Parent	TO	School	Autonomy	1	3	pIndep	14.53	14.84	15.06	15.59
Parent	TO	School	Autonomy	2	4	pIndep		22.74	21.18	21.87

(Table continues)

Table A3.3 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Variable	Analysis sample of Grade			
							1	2	3	4
Parent	TO	School	Effort	1	3	pEffort	14.49	14.79	15.00	15.53
Parent	TO	School	Effort	2	4	pEffort		22.73	21.16	21.85
Parent	TO	School	Effort	3	5	pEffort			29.57	29.70
Parent	TO	School	Effort	4	6	pEffort				32.30
Parent	TO	School	Enjoyment of learning	1	3	pEnjLearn	14.49	14.79	15.00	15.53
Parent	TO	School	Enjoyment of learning	2	4	pEnjLearn		22.73	21.16	21.85
Parent	TO	School	Enjoyment of learning	3	5	pEnjLearn			29.57	29.70
Parent	TO	School	Enjoyment of learning	4	6	pEnjLearn				32.30
Teacher	SO	General	Big Five: Conscientiousness	3	5	e66800b_g1			21.83	23.58
Teacher	SO	General	Big Five: Neuroticism	3	5	e66800e_g1			22.33	24.08
Teacher	OO	General	Big Five: Agreeableness	3	5	e66800c_g1			22.15	23.92
Teacher	OO	General	Big Five: Extraversion	3	5	e66800a_g1			21.81	23.56
Teacher	OO	General	SDQ: Problem behavior	3	5	e67801c_g1			25.14	26.74
Teacher	OO	General	SDQ: Prosocial behavior	3	5	e67801a_g1			26.59	28.03
Teacher	OO	General	TASB: Disruptive behavior	2	4	e67802a_g1		18.09	17.74	18.13
Teacher	TO	General	Big Five: Openness	3	5	e66800d_g1			21.92	23.67
Teacher	TO	School	Effort	1	3	eEffort	10.37	11.38	11.89	12.39
Teacher	TO	School	Enjoyment of learning	1	3	eEnjLearn	10.54	11.54	12.05	12.56
			Age			age	0.00	0.00	0.00	0.00
			Gender			gender	0.00	0.00	0.00	0.00
			Migration background			mig	8.15	7.83	7.69	8.18
			HISEI			hisei	9.11	8.75	8.47	8.96
			Educational attainment			hiedu	8.61	8.27	8.05	8.62
Total							9.52	16.08	17.73	17.41

Note. The table can be read as follows, e.g., first row: For the analysis samples of grades 3 and 4, the percentage of missing values in ICT computer self-concept assessed in grade 3, wave 5 (i.e., variable "tICTSC") was 13.09% and 13.02%, respectively. SO = Self-orientation. OO = Other-orientation. TO = Task-orientation. HISEI = Highest International Socio-Economic Index of Occupational Status (Ganzeboom & Treiman, 1996).

Table A3.4
Percentages of Missing Data for NEPS-SC3

Method	Domain	Context	Measure	Grade	Wave	Variable	Analysis sample of Grade								
							5	6	7	8	9/1	9/2	10	11	12
Student	SO	General	Big Five: Conscientiousness	7	3	t66800c_g1			2.27	5.50	5.20	5.17	4.82	3.79	3.59
Student	SO	General	Big Five: Conscientiousness	9	5	t66800c_g1					2.24	6.39	6.09	4.77	4.87
Student	SO	General	Big Five: Neuroticism	7	3	t66800d_g1			2.85	5.95	5.79	5.71	5.54	4.50	4.26
Student	SO	General	Big Five: Neuroticism	9	5	t66800d_g1					2.22	6.42	6.12	5.04	5.05
Student	SO	General	Self-esteem	5	1	t66003a_g1	14.22	19.42	47.50	45.82	46.37	44.98	44.40	39.22	38.67
Student	SO	General	Self-esteem	9	5	t66003a_g1					6.30	10.23	10.13	8.50	8.77
Student	SO	General	Self-esteem	12	9	t66003a_g1									3.11
Student	SO	School	Academic self-concept	5	1	t66002a_g1	5.95	11.26	42.06	40.24	40.25	38.84	38.28	32.39	32.10
Student	SO	School	Academic self-concept	9	5	t66002a_g1					2.85	6.93	6.79	5.63	5.79
Student	SO	School	Academic self-concept	12	9	t66002a_g1									1.52
Student	SO	Mathematics	Helplessness	7	3	t66005a_g1			6.89	9.57	8.64	9.06	8.56	6.72	6.21
Student	SO	Mathematics	Helplessness	9	6	t66005a_g1						4.82	9.92	10.13	9.44
Student	SO	Mathematics	Self-concept	5	1	t66001a_g1	6.13	11.47	42.22	40.41	40.47	39.05	38.45	32.88	32.58
Student	SO	Mathematics	Self-concept	9	5	t66001a_g1					2.59	6.53	6.62	5.20	5.66
Student	SO	Mathematics	Self-efficacy	7	3	tMSE			3.62	6.70	6.16	6.35	5.86	4.55	4.02
Student	SO	Mathematics	self-concept	12	9	t66001a_g1									1.10
Student	SO	Verbal: German	Helplessness	7	3	t66004a_g1			6.74	9.59	8.88	9.23	8.50	6.45	5.72
Student	SO	Verbal: German	Helplessness	9	6	t66004a_g1						4.24	9.58	10.24	9.50
Student	SO	Verbal: German	Reading self-concept	5	1	tGSCRead	7.27	12.38	42.69	40.84	41.04	39.62	38.89	31.96	31.36
Student	SO	Verbal: German	Reading self-concept	7	3	tGSCRead			3.60	6.53	5.94	6.32	5.77	4.17	3.78
Student	SO	Verbal: German	Reading self-concept	8	4	tGSCRead				0.54	4.91	4.73	4.00	4.33	4.32
Student	SO	Verbal: German	Reading self-concept	9	6	tGSCRead						3.93	9.40	9.64	9.01
Student	SO	Verbal: German	Self-concept	5	1	t66000a_g1	6.31	11.72	42.29	40.51	40.71	39.43	38.74	33.15	32.89
Student	SO	Verbal: German	Self-concept	9	5	t66000a_g1					2.24	6.44	6.15	4.60	4.87
Student	SO	Verbal: German	Self-concept	12	9	t66000a_g1									1.34

(Table continues)

Table A3.4 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Variable	Analysis sample of Grade								
							5	6	7	8	9/1	9/2	10	11	12
Student	OO	General	Big Five: Agreeableness	7	3	t66800b_g1			3.59	6.62	6.43	6.65	6.27	5.25	4.93
Student	OO	General	Big Five: Agreeableness	9	5	t66800b_g1					2.65	6.81	6.33	4.98	5.12
Student	OO	General	Big Five: Extraversion	7	3	t66800a_g1			3.70	6.75	6.60	6.70	6.36	5.09	4.87
Student	OO	General	Big Five: Extraversion	9	5	t66800a_g1					2.43	6.63	6.38	5.09	5.30
Student	OO	General	ICQ: Ability to deal with conflict	12	9	t67808a_g1									3.59
Student	OO	General	ICQ: Assertiveness	12	9	t67807a_g1									2.68
Student	OO	General	SDQ: Problem behavior	6	2	t67801c_g1	5.24	40.76	38.69	39.07	37.77	37.58	32.67	31.91	
Student	OO	General	SDQ: Problem behavior	9	6	t67801c_g1					4.07	9.46	10.78	10.17	
Student	OO	General	SDQ: Prosocial behavior	6	2	t67801a_g1	3.08	39.37	37.17	37.42	36.06	35.64	30.82	30.45	
Student	OO	General	SDQ: Prosocial behavior	9	6	t67801a_g1					3.21	8.82	9.64	8.95	
Student	TO	General	Big Five: Openness	7	3	t66800e_g1			2.26	5.31	5.13	5.20	4.70	3.58	3.53
Student	TO	General	Big Five: Openness	9	5	t66800e_g1					2.22	6.44	6.21	4.88	5.12
Student	TO	General	RIASEC: Artistic interests (IILS)	6	2	t66206c_g1	2.53	39.12	36.98	37.31	35.96	35.29	31.04	30.63	
Student	TO	General	RIASEC: Artistic interests (IILS)	9	6	t66207c_g1					3.91	9.26	9.97	9.26	
Student	TO	General	RIASEC: Artistic interests (IILS)	12	9	t66207c_g1									1.10
Student	TO	General	RIASEC: Conventional interests (IILS)	6	2	t66206f_g1	2.65	38.97	36.74	37.25	35.85	35.49	30.07	29.60	
Student	TO	General	RIASEC: Conventional interests (IILS)	9	6	t66207f_g1					4.45	9.81	10.67	9.93	
Student	TO	General	RIASEC: Conventional interests (IILS)	12	9	t66207f_g1									1.10
Student	TO	General	RIASEC: Enterprising interests (IILS)	6	2	t66206e_g1	3.06	39.29	37.15	37.49	36.01	35.72	30.82	30.27	
Student	TO	General	RIASEC: Enterprising interests (IILS)	9	6	t66207e_g1					4.38	9.63	10.13	9.50	
Student	TO	General	RIASEC: Enterprising interests (IILS)	12	9	t66207e_g1									1.58
Student	TO	General	RIASEC: Investigative interests (IILS)	6	2	t66206b_g1	1.22	38.22	36.00	36.39	34.98	34.53	29.63	29.11	
Student	TO	General	RIASEC: Investigative interests (IILS)	9	6	t66207b_g1					4.12	9.29	10.29	9.74	
Student	TO	General	RIASEC: Investigative interests (IILS)	12	9	t66207b_g1									1.22
Student	TO	General	RIASEC: Realistic interests (IILS)	6	2	t66206a_g1	1.43	38.31	36.04	36.50	35.03	34.71	29.96	29.17	
Student	TO	General	RIASEC: Realistic interests (IILS)	9	6	t66207a_g1					3.91	9.26	9.91	9.32	
Student	TO	General	RIASEC: Realistic interests (IILS)	12	9	t66207a_g1									1.34

(Table continues)

Table A3.4 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Variable	Analysis sample of Grade								
							5	6	7	8	9/1	9/2	10	11	12
Student	TO	General	RIASEC: Social interests (IILS)	6	2	t66206d_g1		3.27	39.47	37.39	37.90	36.53	36.07	31.47	31.12
Student	TO	General	RIASEC: Social interests (IILS)	9	6	t66207d_g1						3.86	9.11	9.97	9.14
Student	TO	General	RIASEC: Social interests (IILS)	12	9	t66207d_g1									1.10
Student	TO	General	TenFlex: Flexibility	10	7	t67000a_g1							4.00	10.24	9.62
Student	TO	General	TenFlex: Persistence	10	7	t67001a_g1							1.16	7.96	7.43
Student	TO	School	Achievement-related learning motivation	8	4	t66402a_g1				5.29	9.32	9.39	8.42	7.58	7.61
Student	TO	School	Achievement-related learning motivation	11	8	t66402a_g1								0.98	6.76
Student	TO	School	Competitive learning motivation	8	4	t66403a_g1				3.15	7.33	7.31	6.33	6.28	6.33
Student	TO	School	Competitive learning motivation	11	8	t66403a_g1								0.98	6.76
Student	TO	School	Job-related learning motivation	8	4	t66404a_g1				4.75	8.88	8.87	8.18	7.96	7.92
Student	TO	School	Job-related learning motivation	11	8	t66404a_g1								1.14	6.88
Student	TO	Mathematics	Interest	6	2	t66201a_g1		1.97	38.64	36.53	36.96	35.57	35.06	30.28	29.72
Student	TO	Mathematics	Interest	9	6	t66201a_g1						5.06	10.33	10.51	9.93
Student	TO	Mathematics	Intrinsic value	8	4	t66401a_g1				3.94	8.14	8.15	7.31	6.88	7.06
Student	TO	Mathematics	Intrinsic value	11	8	t66401a_g1								0.87	6.64
Student	TO	Verbal: German	Enjoyment of reading	5	1	tGEnjRead	6.07	11.30	42.06	40.19	40.43	39.03	38.36	31.74	31.12
Student	TO	Verbal: German	Enjoyment of reading	6	2	tGEnjRead		5.82	40.76	38.52	38.82	37.49	37.06	31.31	30.69
Student	TO	Verbal: German	Enjoyment of reading	7	3	tGEnjRead			3.19	6.19	5.59	5.99	5.43	3.79	3.41
Student	TO	Verbal: German	Enjoyment of reading	8	4	tGEnjRead				0.75	5.11	4.92	4.09	4.44	4.38
Student	TO	Verbal: German	Enjoyment of reading	9	5	tGEnjRead					1.12	5.29	5.28	4.06	4.38
Student	TO	Verbal: German	Enjoyment of reading	9	6	tGEnjRead						3.51	9.00	9.26	8.77
Student	TO	Verbal: German	Interest	6	2	t66208a_g1		2.61	39.12	36.96	37.33	35.99	35.66	30.55	30.09
Student	TO	Verbal: German	Interest	9	6	t66208a_g1						5.20	10.30	10.51	9.81
Student	TO	Verbal: German	Intrinsic value	8	4	t66400a_g1				4.18	8.42	8.41	7.84	6.66	6.82
Student	TO	Verbal: German	Intrinsic value	11	8	t66400a_g1								0.87	6.58

(Table continues)

Table A3.4 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Variable	Analysis sample of Grade								
							5	6	7	8	9/1	9/2	10	11	12
Parent	SO	General	Big Five: Conscientiousness	7	3	p66802b_g1			39.54	38.31	38.39	38.02	37.46	28.22	28.62
Parent	SO	General	Big Five: Conscientiousness	9	6	p66802b_g1						51.35	50.87	42.42	42.63
Parent	SO	General	Big Five: Neuroticism	7	3	p66802e_g1			39.59	38.35	38.43	38.05	37.52	28.28	28.68
Parent	SO	General	Big Five: Neuroticism	9	6	p66802e_g1						51.28	50.81	42.36	42.57
Parent	OO	General	Big Five: Agreeableness	7	3	p66802c_g1			39.85	38.61	38.69	38.30	37.81	28.39	28.75
Parent	OO	General	Big Five: Agreeableness	9	6	p66802c_g1						51.56	51.04	42.52	42.69
Parent	OO	General	Big Five: Extraversion	7	3	p66802a_g1			39.54	38.33	38.41	38.05	37.52	28.28	28.68
Parent	OO	General	Big Five: Extraversion	9	6	p66802a_g1						51.30	50.81	42.36	42.57
Parent	OO	General	SDQ: Problem behavior	6	2	p67801c_g1		36.51	58.22	56.32	56.92	55.68	55.02	46.80	46.65
Parent	OO	General	SDQ: Problem behavior	9	6	p67801c_g1						51.98	51.63	43.28	43.54
Parent	OO	General	SDQ: Prosocial behavior	6	2	p67801a_g1		36.00	57.93	55.97	56.61	55.42	54.61	46.32	46.22
Parent	OO	General	SDQ: Prosocial behavior	9	6	p67801a_g1						51.77	51.28	43.01	43.12
Parent	OO	School	Social integration	6	2	pSocInt		35.98	57.89	56.04	56.64	55.47	54.53	46.42	46.41
Parent	OO	School	Social integration	7	3	pSocInt			39.52	38.29	38.36	38.00	37.46	28.22	28.62
Parent	OO	School	Social integration	8	4	pSocInt				42.25	42.49	41.91	41.27	32.83	33.31
Parent	TO	General	Big Five: Openness	7	3	p66802d_g1			39.52	38.31	38.39	38.02	37.49	28.28	28.68
Parent	TO	General	Big Five: Openness	9	6	p66802d_g1						51.30	50.81	42.36	42.57
Parent	TO	School	Autonomy	6	2	pIndep		36.02	57.93	56.04	56.64	55.47	54.56	46.42	46.41
Parent	TO	School	Autonomy	7	3	pIndep			39.50	38.29	38.36	38.00	37.46	28.22	28.62
Parent	TO	School	Autonomy	8	4	pIndep				42.23	42.49	41.91	41.27	32.83	33.31

(Table continues)

Table A3.4 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Variable	Analysis sample of Grade
							5	6	7	8	9/1	9/2	10	11	12
			Age			age	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Gender			gender	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Migration background			mig	25.50	25.50	31.70	30.43	30.40	30.04	30.30	22.91	23.26
			HISEI			hisei	26.70	26.62	32.61	31.33	31.34	30.98	31.20	23.78	24.00
			Educational attainment			hiedu	26.03	25.96	32.03	30.79	30.82	30.46	30.56	23.02	23.39
Total sparseness							11.29	12.81	31.04	27.26	23.85	22.98	23.01	18.52	16.69

Note. The table can be read as follows, e.g., first row: For the analysis samples of grade 7/8/9 (first half year)/ 9 (second half year)/10/11/12, the percentage of missing values in Big Five: Conscientiousness assessed in grade 7, wave 3 (i.e., variable "t66800c_g1") was 2.27/5.50/5.20/5.17/4.82/3.79/3.59. SO = Self-orientation. OO = Other-orientation. TO = Task-orientation. HISEI = Highest International Socio-Economic Index of Occupational Status (Ganzeboom & Treiman, 1996).

Table A3.5

Percentages of Missing Data for NEPS-SC4

Method	Domain	Context	Measure	Grade	Wave	Variable	Analysis sample of Grade					
							9/1	9/2	10	11	12	13
Student	SO	General	Big Five: Conscientiousness	9	1	t66800c_g1	3.80	5.89	5.45	4.25	4.18	5.16
Student	SO	General	Big Five: Neuroticism	9	1	t66800d_g1	3.97	6.05	5.72	4.44	4.34	5.69
Student	SO	General	Self-esteem	9	1	t66003a_g1	8.83	10.76	10.15	8.89	8.97	11.03
Student	SO	General	Self-esteem	12	7	t66003a_g1					14.29	10.50
Student	SO	General	Self-esteem	13	8	t66003a_g1						11.92
Student	SO	School	Academic self-concept	9	1	t66002a_g1	4.67	6.75	6.48	5.41	5.29	6.05
Student	SO	School	Academic self-concept	12	7	t66002a_g1					13.74	9.43
Student	SO	School	Academic self-concept	13	8	t66002a_g1						10.85
Student	SO	Mathematics	Helplessness	9	2	t66005a_g1		10.78	8.78	6.33	6.28	6.23
Student	SO	Mathematics	Self-concept	9	1	t66001a_g1	4.71	6.77	6.53	5.15	5.04	6.05
Student	SO	Mathematics	Self-concept	12	7	t66001a_g1					13.11	8.54
Student	SO	Mathematics	Self-concept	13	8	t66001a_g1						11.03
Student	SO	Verbal: german	Helplessness	9	2	t66004a_g1		10.28	8.27	6.28	6.23	5.69
Student	SO	Verbal: german	Self-concept	9	1	t66000a_g1	4.46	6.51	6.03	4.88	4.71	5.87
Student	SO	Verbal: german	Self-concept	12	7	t66000a_g1					12.96	8.90
Student	SO	Verbal: german	Self-concept	13	8	t66000a_g1						11.03
Student	OO	General	Big Five: Agreeableness	9	1	t66800b_g1	4.61	6.69	6.28	4.71	4.66	6.41
Student	OO	General	Big Five: Extraversion	9	1	t66800a_g1	4.35	6.45	6.00	4.62	4.51	5.52
Student	OO	General	ICQ: Ability to deal with conflict	12	7	t67808a_g1					15.05	11.21
Student	OO	General	ICQ: Ability to deal with conflict	13	8	t67808a_g1						12.46
Student	OO	General	ICQ: Assertiveness	12	7	t67807a_g1					14.37	9.07
Student	OO	General	ICQ: Assertiveness	13	8	t67807a_g1						12.63
Student	OO	General	SDQ: Problem behavior	9	2	t67801c_g1		10.50	8.87	7.71	7.71	8.01
Student	OO	General	SDQ: Prosocial behavior	9	2	t67801a_g1		8.95	7.20	6.28	6.23	5.87
Student	TO	General	Big Five: Openness	9	1	t66800e_g1	4.03	6.09	5.60	4.34	4.29	5.34

(Table continues)

Table A3.5 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Variable	9/1	9/2	10	11	12	13
								Analysis sample of Grade				
Student	TO	General	RIASEC: Artistic interests (IILS)	9	2	t66207c_g1		9.75	7.90	5.91	5.97	4.98
Student	TO	General	RIASEC: Artistic interests (IILS)	12	7	t66207c_g1					12.45	7.65
Student	TO	General	RIASEC: Artistic interests (IILS)	13	8	t66207c_g1						10.32
Student	TO	General	RIASEC: Conventional interests (IILS)	9	2	t66207f_g1		10.02	8.17	5.82	5.85	4.98
Student	TO	General	RIASEC: Conventional interests (IILS)	12	7	t66207f_g1					12.70	8.36
Student	TO	General	RIASEC: Conventional interests (IILS)	13	8	t66207f_g1						10.50
Student	TO	General	RIASEC: Enterprising interests (IILS)	9	2	t66207e_g1		9.93	8.07	6.09	6.05	4.80
Student	TO	General	RIASEC: Enterprising interests (IILS)	12	7	t66207e_g1					12.76	7.83
Student	TO	General	RIASEC: Enterprising interests (IILS)	13	8	t66207e_g1						11.39
Student	TO	General	RIASEC: Investigative interests (IILS)	9	2	t66207b_g1		9.20	7.51	5.39	5.39	4.27
Student	TO	General	RIASEC: Investigative interests (IILS)	12	7	t66207b_g1					12.55	7.65
Student	TO	General	RIASEC: Investigative interests (IILS)	13	8	t66207b_g1						10.50
Student	TO	General	RIASEC: Realistic interests (IILS)	9	2	t66207a_g1		9.18	7.43	5.52	5.47	4.45
Student	TO	General	RIASEC: Realistic interests (IILS)	12	7	t66207a_g1					12.58	8.01
Student	TO	General	RIASEC: Realistic interests (IILS)	13	8	t66207a_g1						10.32
Student	TO	General	RIASEC: Social interests (IILS)	9	2	t66207d_g1		9.92	7.95	5.98	6.00	4.98
Student	TO	General	RIASEC: Social interests (IILS)	12	7	t66207d_g1					12.81	7.83
Student	TO	General	RIASEC: Social interests (IILS)	13	8	t66207d_g1						10.50
Student	TO	General	TenFlex: Flexibility	10	3	t67000a_g1			8.75	8.10	8.09	9.07
Student	TO	General	TenFlex: Persistence	10	3	t67001a_g1			7.12	6.63	6.68	6.58
Student	TO	School	Achievement-related learning motivation	11	5	t66402a_g1				10.58	7.54	11.92
Student	TO	School	Competitive learning motivation	11	5	t66403a_g1				10.53	7.51	12.10
Student	TO	School	Intrinsic value German	11	5	t66400a_g1				10.64	7.61	12.46
Student	TO	School	Intrinsic value math	11	5	t66401a_g1				10.38	7.31	11.74
Student	TO	School	Job-related learning motivation	11	5	t66404a_g1				10.38	7.34	11.92
Student	TO	Mathematics	Interest	9	2	t66201a_g1		10.93	9.01	6.63	6.50	6.23
Student	TO	Verbal: german	Interest	9	2	t66208a_g1		11.04	9.00	6.33	6.20	5.87

(Table continues)

Table A3.5 *(continued)*

Method	Domain	Context	Measure	Grade	Wave	Variable	Analysis sample of Grade					
							9/1	9/2	10	11	12	13
Parent	OO	General	SDQ: Prosocial behavior	9	1	p67801a_g1	42.70	43.80	42.33	33.52	33.15	32.74
Parent	TO	General	RIASEC: Artistic interests (IILS)	12	7	p66207c_g1					39.78	40.39
Parent	TO	General	RIASEC: Conventional interests (IILS)	12	7	p66207f_g1					41.14	42.53
Parent	TO	General	RIASEC: Enterprising interests (IILS)	12	7	p66207e_g1					40.31	40.75
Parent	TO	General	RIASEC: Investigative interests (IILS)	12	7	p66207b_g1					42.05	43.59
Parent	TO	General	RIASEC: Realistic interests (IILS)	12	7	p66207a_g1					41.27	42.53
Parent	TO	General	RIASEC: Social interests (IILS)	12	7	p66207d_g1					40.99	41.64
			Age			age	0.03	0.07	0.00	0.00	0.00	0.00
			Gender			gender	0.03	0.06	0.00	0.00	0.00	0.00
			Migration background			mig	40.35	41.36	39.73	30.22	29.82	28.83
			HISEI			hisei	42.00	42.94	41.18	31.22	30.83	30.43
			Educational attainment			hiedu	40.92	41.91	40.21	30.33	29.95	29.00
Total sparseness							13.96	13.06	11.58	9.22	13.47	12.66

Note. The table can be read as follows, e.g., first row: For the analysis samples of grade 9 (first half year)/ 9 (second half year)/10/11/12/13, the percentage of missing values in Big Five: Conscientiousness assessed in grade 9, wave 1 (i.e., variable "t66800c_g1") was 3.80/5.89/5.45/4.25/4.18/5.16. SO = Self-orientation. OO = Other-orientation. TO = Task-orientation. HISEI = Highest International Socio-Economic Index of Occupational Status (Ganzeboom & Treiman, 1996).

Table A3.6

Percentages of Missing Data for PISA 2003

Method	Domain	Context	Measure	Grade	Wave	Variable	Analysis sample of Grade	
							9	10
Student	SO	Mathematics	Anxiety	9	1	ax_w	3.07	3.07
Student	SO	Mathematics	Anxiety	10	2	ax_t2		5.73
Student	SO	Mathematics	Self-concept	9	1	scmat_w_imp	0.00	0.00
Student	SO	Mathematics	Self-concept	10	2	msk_t2		5.86
Student	SO	Mathematics	Self-efficacy	9	1	mathef_w_imp	0.00	0.00
Student	SO	Mathematics	Self-efficacy	10	2	mse_t2		5.78
Student	TO	Mathematics	Boredom	9	1	bo_w	3.12	3.12
Student	TO	Mathematics	Boredom	10	2	bo_t2		5.71
Student	TO	Mathematics	Effort	9	1	effor_w	56.64	56.64
Student	TO	Mathematics	Effort	10	2	effor_t2		57.91
Student	TO	Mathematics	Enjoyment	9	1	jo_w_imp	0.00	0.00
Student	TO	Mathematics	Enjoyment	10	2	jo_t2		5.71
Student	TO	Mathematics	Instrumental value	9	1	instmo_w_imp	0.00	0.00
Student	TO	Mathematics	Instrumental value	10	2	inst_t2		5.83
Student	TO	Mathematics	Interest	9	1	intmat_w_imp	0.00	0.00
Student	TO	Mathematics	Interest	10	2	intma_t2		5.80
			Age			age	0.85	0.85
			Gender			gender	0.93	0.93
			Migration background			mig	6.71	6.71
			HISEI			hisei	2.69	2.69
			Educational attainment			hiedu	3.62	3.62
Total sparseness							5.97	8.38

Note. The table can be read as follows, e.g., first row: For both the analysis samples of grades 9 and 10, the percentage of missing values in mathematics anxiety assessed in grade 9, wave 1 (i.e., variable "ax_w") was 3.07. SO = Self-orientation. OO = Other-orientation. TO = Task-orientation. HISEI = Highest International Socio-Economic Index of Occupational Status (Ganzeboom & Treiman, 1996).

Table A3.7
Percentages of Missing Data for PISA 2006

Method	Domain	Context	Measure	Grade	Wave	Variable	Analysis sample of Grade 9
Student	SO	Science	Self-concept	9		scscie_wle	1.00
Student	SO	Science	Self-efficacy	9		scieeff_wle	0.56
Student	SO	ICT	Self-concept advanced skills	9		highconf_wle	0.81
Student	SO	ICT	Self-concept internet applications	9		intconf_wle	0.81
Student	TO	Science	Enjoyment	9		joyscie_wle	0.19
Student	TO	Science	Future-related motivation	9		sciefut_wle	0.56
Student	TO	Science	Interest	9		intscie_wle	0.37
Student	TO	Science	Instrumental value	9		instscie_wle	1.12
Student	TO	Science	Personal value	9		perscie_wle	0.81
			Age			age	0.00
			Gender			gender	0.00
			Migration background			mig	5.29
			HISEI			hisei	3.48
			Educational attainment			hiedu	1.68
Total sparseness							1.19

Note. The table can be read as follows, e.g., first row: For the analysis sample of grade 9, the percentage of missing values in science self-concept (i.e., variable "scscie_wle") was 1.00%. SO = Self-orientation. TO = Task-orientation. HISEI = Highest International Socio-Economic Index of Occupational Status (Ganzeboom & Treiman, 1996).

Table A3.8

Percentages of Missing Data for PISA 2009

Method	Domain	Context	Measure	Grade	Wave	Variable	Analysis sample of Grade 9
Student	SO	ICT	Self-efficacy advanced skills	9		highconf	4.13
Student	SO	Verbal: German	Reading self-concept	9		sk_lesen	3.49
Student	SO	Verbal: German	Self-concept	9		sk_deu	3.50
Student	TO	ICT	Attitude	9		attcomp	4.18
Student	TO	Verbal: German	Attitude towards reading	9		einles_st	3.47
Student	TO	Verbal: German	Enjoyment of reading	9		joyread	1.10
Student	TO	Verbal: German	Reading interest	9		leseinteresse	3.49
			Age			age	1.42
			Gender			gender	0.00
			Migration background			mig	4.95
			HISEI			hisei	5.35
			Educational attainment			hiedu	7.02
Total sparseness							3.51

Note. The table can be read as follows, e.g., first row: For the analysis sample of grade 9, the percentage of missing values in ICT self-efficacy advanced skills (i.e., variable "highconf") was 4.13%. SO = Self-orientation. TO = Task-orientation. HISEI = Highest International Socio-Economic Index of Occupational Status (Ganzeboom & Treiman, 1996).

Table A3.9

Percentages of Missing Data for PISA 2012

Method	Domain	Context	Measure	Grade	Wave	Variable	Analysis sample of Grade 9
Student	SO	Mathematics	Anxiety	9		anxmat	34.31
Student	SO	Mathematics	Self-concept	9		scmat	34.34
Student	SO	Mathematics	Self-efficacy	9		matheff	33.61
Student	OO	School	Sense of belonging to school	9		belong	34.19
Student	TO	School	Achievement-related learning motivation	9		atschl	34.21
Student	TO	School	Mastery-related learning motivation	9		attlnact	34.46
Student	TO	School	Openness for problem solving	9		openps	33.88
Student	TO	School	Perseverance	9		persev	33.88
Student	TO	Mathematics	Attributions to failure	9		failmat	33.97
Student	TO	Mathematics	Instrumental value	9		instmot	33.60
Student	TO	Mathematics	Interest	9		intmat	33.54
Student	TO	Mathematics	Work ethic	9		matwketh	33.85
			Age			age	0.00
			Gender			gender	0.00
			Migration background			mig	6.24
			HISEI			hisei	0.00
			Educational attainment			hiedu	7.75
Total sparseness							24.81

Note. The table can be read as follows, e.g., first row: For the analysis sample of grade 9, the percentage of missing values in mathematics anxiety (i.e., variable "anxmat") was 34.31%. SO = Self-orientation. OO = Other-orientation. TO = Task-orientation. HISEI = Highest International Socio-Economic Index of Occupational Status (Ganzeboom & Treiman, 1996).

A4   Statistical Analyses

Stage 1: Estimation of Design Parameters

In Stage 1 of the individual participant data (IPD) meta-analysis (Brunner et al., 2023), the design parameters were estimated based on the IPD of the mentioned probability samples from the large-scale assessment studies.

Design Parameters. To compute design parameters, we employed the R package `multides` (Stallasch, 2024), which processes variance (component) estimates obtained from fitted models. To estimate the total variances required for calculating the single-level design parameter R^2_{Total}, we applied linear regression modeling using ordinary least squares (OLS) via the `lm` function from base R (R Core Team, 2025). To estimate the multilevel variance components necessary for computing the two- and/or three-level design parameters $\rho_{Classroom}$ and ρ_{School}, as well as $R^2_{Student}$, $R^2_{Classroom}$, and R^2_{School}, we employed multilevel modeling using restricted maximum likelihood (REML) estimation with the R package `lme4` (Bates et al., 2015).

Handling of Convergence Problems. For a small proportion of imputed datasets in combination with certain model sets, we encountered convergence warnings from the REML algorithm. In these cases, we followed the troubleshooting strategies recommended by Bolker (2014) and Bates et al. (2022, p. 17): We applied the bobyqa optimizer as implemented in the R package `minqa` (Bates et al., 2014) as well as increased the maximum number of function evaluations and decreased the final value of the trust region radius (i.e., the scale of parameter uncertainty on convergence). These adjustments resolved all convergence problems.

Standard Errors. The standard errors of all design parameters were computed using the R package `multides` (Stallasch, 2024). Specifically, in two-level designs, the standard errors of ρ_{School} are based on the formula given in Donner and Koval (1980, Equation [3]); in three-level designs, the standard errors of $\rho_{Classroom}$ and ρ_{School} are based on the formulas given

in Hedges et al. (2012, Equations [7] to [9]). The standard errors of all R^2s are based on the formula given in Hedges and Hedberg (2013, p. 451).

Note that the expressions to compute the standard errors of $\rho_{Classroom}$ and ρ_{School} in unbalanced three-level designs involve the sampling variances of the unconditional (i.e., not covariate-adjusted) variance components at the classroom and school levels. We applied cluster bootstrapping mimicking the multistage sampling procedure originally adopted in the large-scale assessment studies (Loy & Korobova, 2023; van der Leeden et al., 2008): We first resampled schools, followed by students within those schools. We employed the R package `lmeresampler` (Loy et al., 2023) to generate 1,000 samples per multiply imputed dataset (Huang, 2018; Schomaker & Heumann, 2018). A small proportion of iterations ($\leq 0.3\%$ across all two- and three-level models and all populations) did not properly converge. The respective iterations were therefore excluded from the estimation of bootstrap statistics.

Stage 2: Meta-Analytic Integration

In Stage 2 of the IPD meta-analysis (Brunner et al., 2023), the design parameters estimated in Stage 1 were meta-analyzed. We employed the R package `metafor` (Viechtbauer, 2010) throughout all steps of the meta-analyses.

Meta-Analytic Summaries. We estimated meta-analytic averages of the design parameters along with their normative distributions. Specifically, in addition to the standard errors, we provide 95% confidence intervals, and—for random-effects models—95% prediction intervals as well as (multilevel) I^2 statistics (Higgins & Thompson, 2002). A 95% prediction interval depicts the distribution within which the true value of a certain design parameter is expected to fall for approximately 95% of all relevant populations. I^2 quantifies the amount of true heterogeneity in the total variation across observed R^2 values (Borenstein et al., 2017). According to Higgins et al. (2022), $30\% \leq I^2 \leq 60\%$, $50\% \leq I^2 \leq 90\%$, and $75\% \leq I^2 \leq 100\%$ indicate moderate, substantial, and considerable heterogeneity.

We fitted two classes of meta-analytic models, conditional on the number of observed design parameter estimates k to be integrated: (multivariate) fixed-effect models (Rice et al., 2018) if $2 \leq k \leq 9$ and (multivariate) random-effects models (Konstantopoulos & Hedges, 2019) if $k \geq 10$. The was due to the fact that random-effects models might produce biased heterogeneity parameter estimates when $k < 10$ (Langan et al., 2019). Multivariate meta-analyses were applied when several design parameters were synthesized across multiple samples j (i.e., where the number of samples $J > 1$). In this case, the random effect models were specified as multilevel models with design parameters being nested within samples. The variance for the random effects was estimated via REML (Langan et al., 2019; Veroniki et al., 2016). In total, we generated 1887 meta-analytic summaries, of which 1325 were based on fixed-effect models (multivariate: 339), and 562 were based on random-effects models (multivariate: 492).

Weighting Schemes. We applied different weighting schemes, conditional on J and the cross-sample variation in the number of design parameters observed per sample k_j: For $J > 1$, we imputed working variance-covariance matrices with an assumed within-sample intercorrelation of $r = .70$ between design parameters (for details, see next section). In multivariate fixed-effect models, we adjusted the inverse-variance weights for varying numbers of design parameters per sample (i.e., if $\text{Var}(k_j) \neq 0$), thereby ensuring that the average (true) design parameter falls within the range of observed estimates and is not unduly influenced by samples contributing many design parameters (Viechtbauer, 2022). If $J = 1$, we relied on standard-inverse variance weights based on the design-parameter-specific sampling variances.

Within-Sample Dependencies. Several design parameters originated from the same sample. In multi-sample cases, we accounted for the resulting within-sample dependencies by imputing a working variance-covariance matrix for the observed design parameters (Hedges,

2019). To this end, we utilized the IPD to compile empirical distributions of the correlations among outcomes that were measured via a specific assessment method. Since both ICCs and R^2s have a theoretical range from zero to one, we used absolute values of correlations. For self-reports/parent ratings/teacher ratings, absolute correlations ranged between $.00 \leq r \leq .91/.00 \leq r \leq .75/.03 \leq r \leq .70$, where an absolute value of $r = .70$ corresponded to the 100th/100th/99th percentile in these distributions. We thus assumed $r = .70$ as a reasonable upper-bound estimate for the within-sample correlations between design parameters.

Sensitivity Analysis. To preclude a misspecification of the within-sample dependencies among design parameters, we systematically conducted sensitivity analyses for all meta-analytic summaries over $r \in \{0.00, 0.10, \ldots, 0.90\}$ (Hedges, 2019; Mavridis & Salanti, 2013). Specifically, we imputed one working covariance matrix per r value and used it to re-analyze each meta-analytic summary. For MA-1, Figures A4.1, A4.2, and A4.3 show the estimates of (a) the meta-analytic averages ($\hat{\theta}$), (b) the standard errors for the meta-analytic averages (SE), (c) the within-sample heterogeneity parameter estimates of the random effects (τ^2_{Within}), and (d) the between-sample heterogeneity parameter estimates of the random effects (τ^2_{Between}) obtained for the total population, the academic track, and the non-academic track, respectively; stratified by r value. Complete results of the sensitivity analyses can be retrieved from Table A4.1 on the OSF (https://osf.io/jkemy/).

To gauge the robustness of our results against the chosen value of r, we computed the minimum and maximum of $\hat{\theta}$, SE, τ^2_{Within}, and τ^2_{Between} across r values as well as the differences Δ in $\hat{\theta}$, SE, τ^2_{Within}, and τ^2_{Between} between $r = 0$ and $r = .90$ (Table A4.2 on the OSF; https://osf.io/jkemy/).

While some estimates varied to a moderate extent across r values, the overall conclusions remained robust. For MA-1, the key results can be summarized as follows. First, the meta-analytic averages for the total population/academic track/non-academic track lay in

the range of $.00 \leq \Delta\hat{\theta} \leq .06/ .00 \leq \Delta\hat{\theta} \leq .17/ .00 \leq \Delta\hat{\theta} \leq .09$, where $\Delta\hat{\theta} = .01$ marked the

79th/60th/62nd percentile, $\Delta\hat{\theta} = .02$ the 89th/74th/74th percentile, and $\Delta\hat{\theta} = .05$ the

98th/86th/88th percentile.

Second, the standard errors of the meta-analytic averages for the total

population/academic track/non-academic track lay in the range of $.00 \leq \Delta SE \leq .07/ .00 \leq \Delta SE$

$\leq .04/ .00 \leq \Delta SE \leq .04$, where $\Delta SE = .01$ marked the 89th/76th/76th percentile, $\Delta SE = .02$ the

97th/88th/86th percentile, and $\Delta SE = .05$ the 99th/100th/100th percentile.

Third, the within-sample heterogeneity parameter estimates of the random effects for

the total population/academic track/non-academic track lay in the range of $.0000 \leq \Delta\tau^2_{Within} \leq$

$.0056/ .0000 \leq \Delta\tau^2_{Within} \leq .0063/ .0000 \leq \Delta\tau^2_{Within} \leq .0074$, where $\Delta\tau^2_{Within} = .0001$ marked the

65th/55th/50th percentile, $\Delta\tau^2_{Within} = .0004$ the 78th/76th/76th percentile, and $\Delta\tau^2_{Within} = .0025$

the 91st/93rd/83rd percentile.

Fourth, the between-sample heterogeneity parameter estimates of the random effects

for the total population/academic track/non-academic track lay in the range of $.00 \leq \Delta\tau^2_{Between}$

$\leq .0353/ .00 \leq \Delta\tau^2_{Between} \leq .0168/.00 \leq \Delta\tau^2_{Between} \leq .0338$, where $\Delta\tau^2_{Between} = .0001$ marked the

62nd/62nd/50th percentile, $\Delta\tau^2_{Between} = .0004$ the 80th/74th/76th percentile, and $\Delta\tau^2_{Between} =$

$.0025$ the 87th/88th/86th percentile.

To conclude, despite the considerable ranges of $\Delta\hat{\theta}$, ΔSE, $\Delta\tau^2_{Within}$, and $\Delta\tau^2_{Between}$, most

meta-analytic estimates varied only to a small extent across the different values chosen for *r*.

Handling of Implausible Values
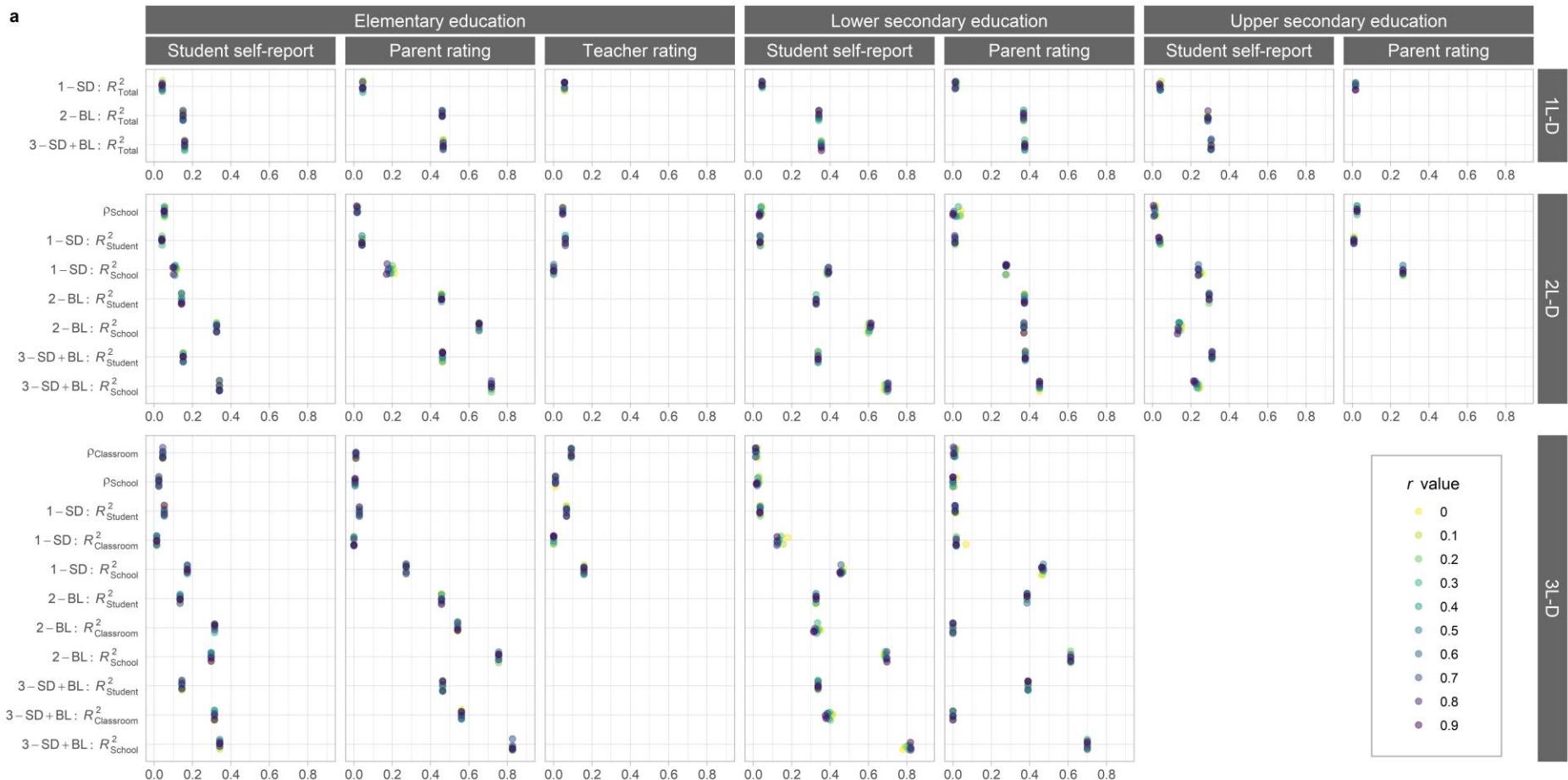
For 37 out of a total of 2789 two-level design parameters (1.33%), and 107 out of a

total of 3932 three-level design parameters (2.72%), the standard errors were estimated to be

(close to) zero (i.e., < 1e-07), indicating potential estimation artefacts or instability of the

model fits. For the meta-analytic integration in Stage 2, we replaced these standard errors with

the next largest observed standard error (i.e., $\geq$ 1e-07) to avoid ill-conditioning of the sampling variance-covariance matrix of design parameters (Pustejovsky, 2019).

Generally, recall that the design parameters have a theoretical range of [0, 1]. When point estimates of the ICCs and R^2s, or any bounds of the 95% CIs or meta-analytic 95% PIs fell outside this range (e.g., due to estimation error or unconditional variance components near zero; Jacob et al., 2010), we followed established practices from prior studies on design parameters (Brunner et al., 2018, 2025; Hedges & Hedberg, 2013; Stallasch et al., 2021, 2024) and truncated the values accordingly.
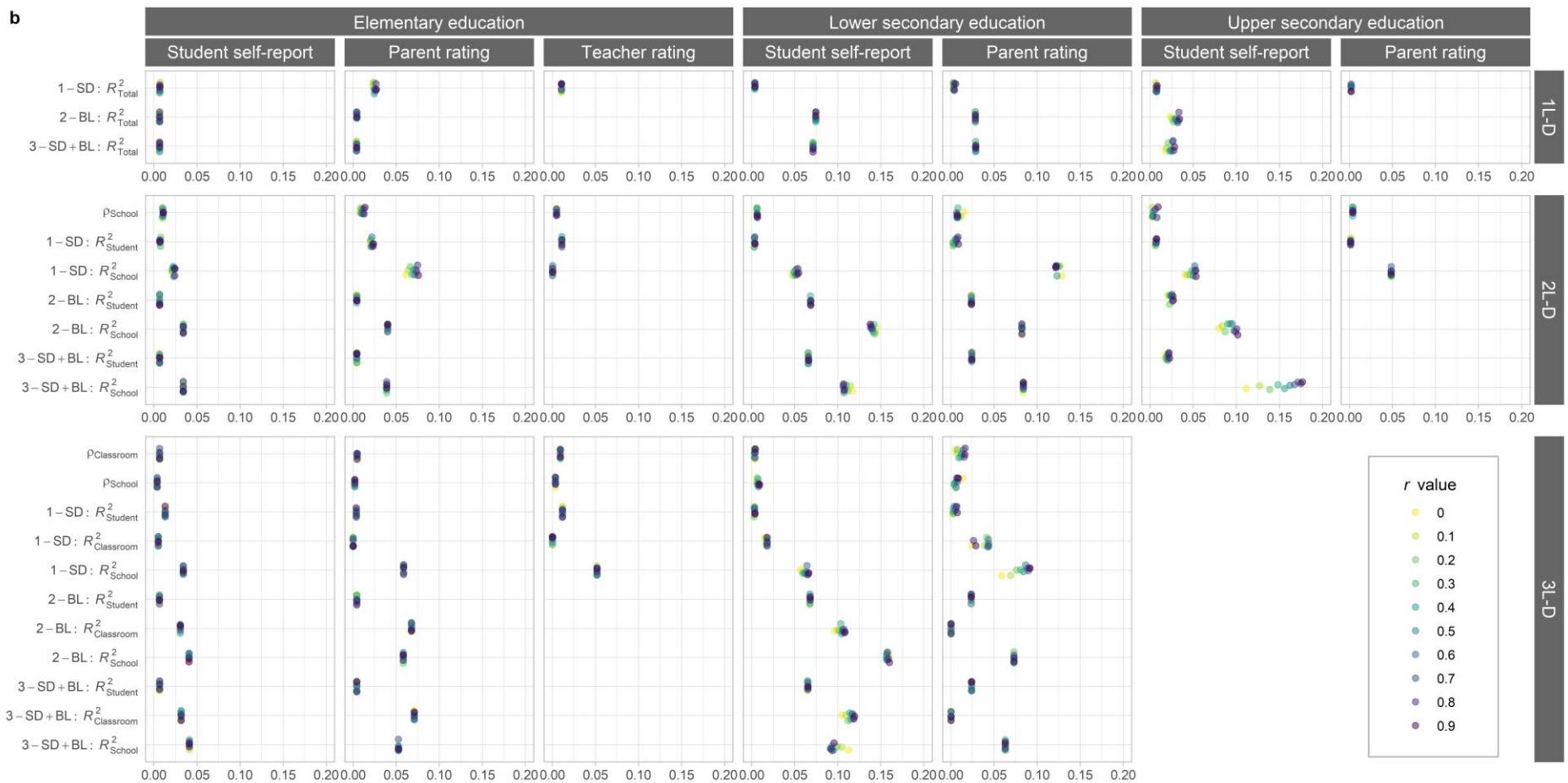
Figure A4.1

Sensitivity Analysis of the Meta-Analytic Integration—Total Student Population: (a) Meta-Analytic Averages ($\hat{\theta}$), (b) Standard Errors (SE), (c) Within-Sample Heterogeneity (τ^2_{Within}), and (d) Between-Sample Heterogeneity ($\tau^2_{Between}$) for Varying Within-Sample Effect Size Dependencies r
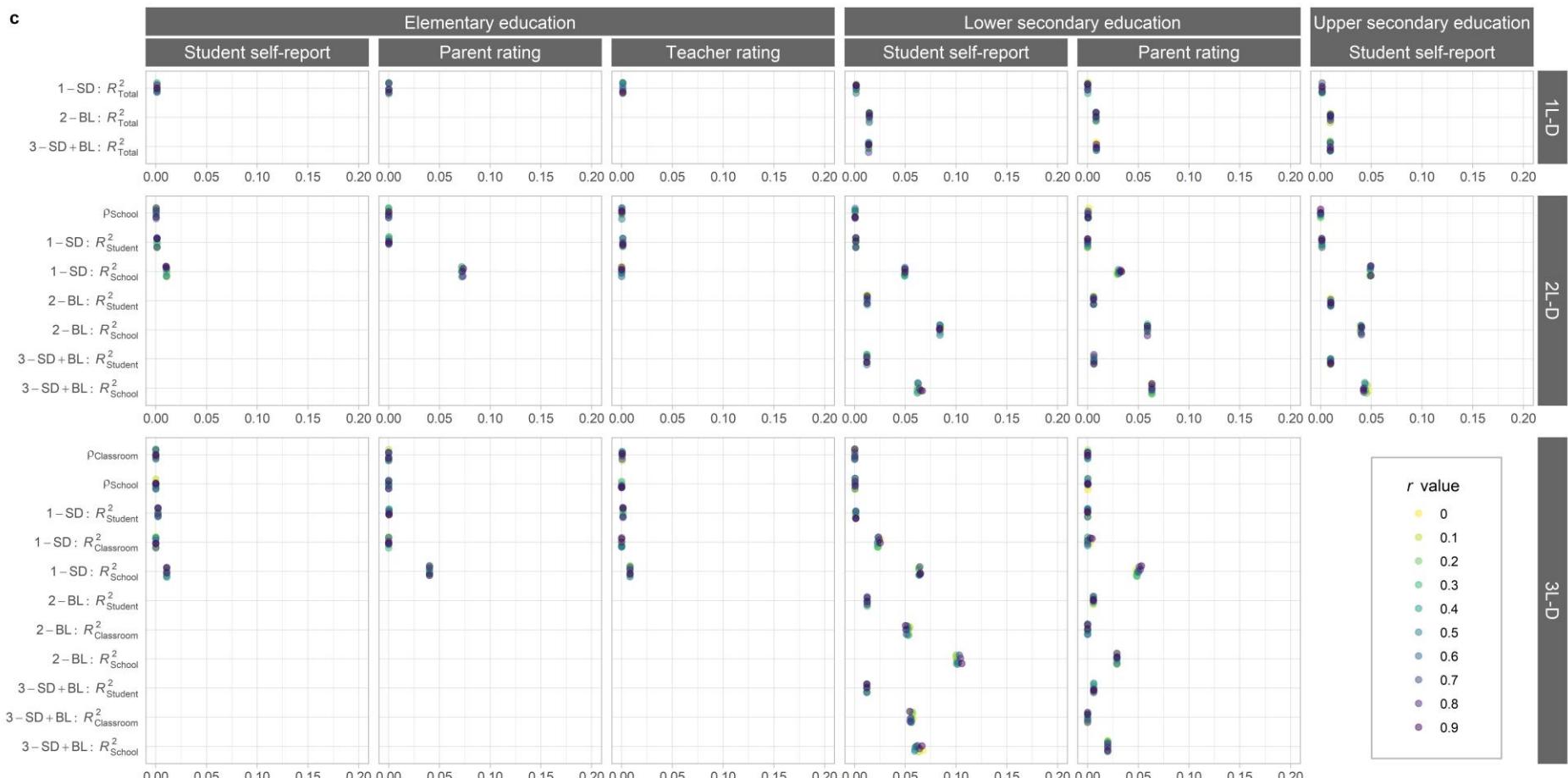
(Figure continues)

Figure A4.1 *(continued)*

(Figure continues)

Figure A4.1 *(continued)*

(Figure continues)

Figure A4.1 *(continued)*

Note. 1L-D = Single-level design. 2L-D = Two-level design. 3L-D = Three-level design. The meta-analytic summaries are based on model set MA-1. 1-SD = Model Set 1 with sociodemographic characteristics as covariates. 2-BL = Model Set 2 with a baseline measure as covariate. 3-SD+BL = Model Set 3 with sociodemographic characteristics plus a baseline measure as covariates.
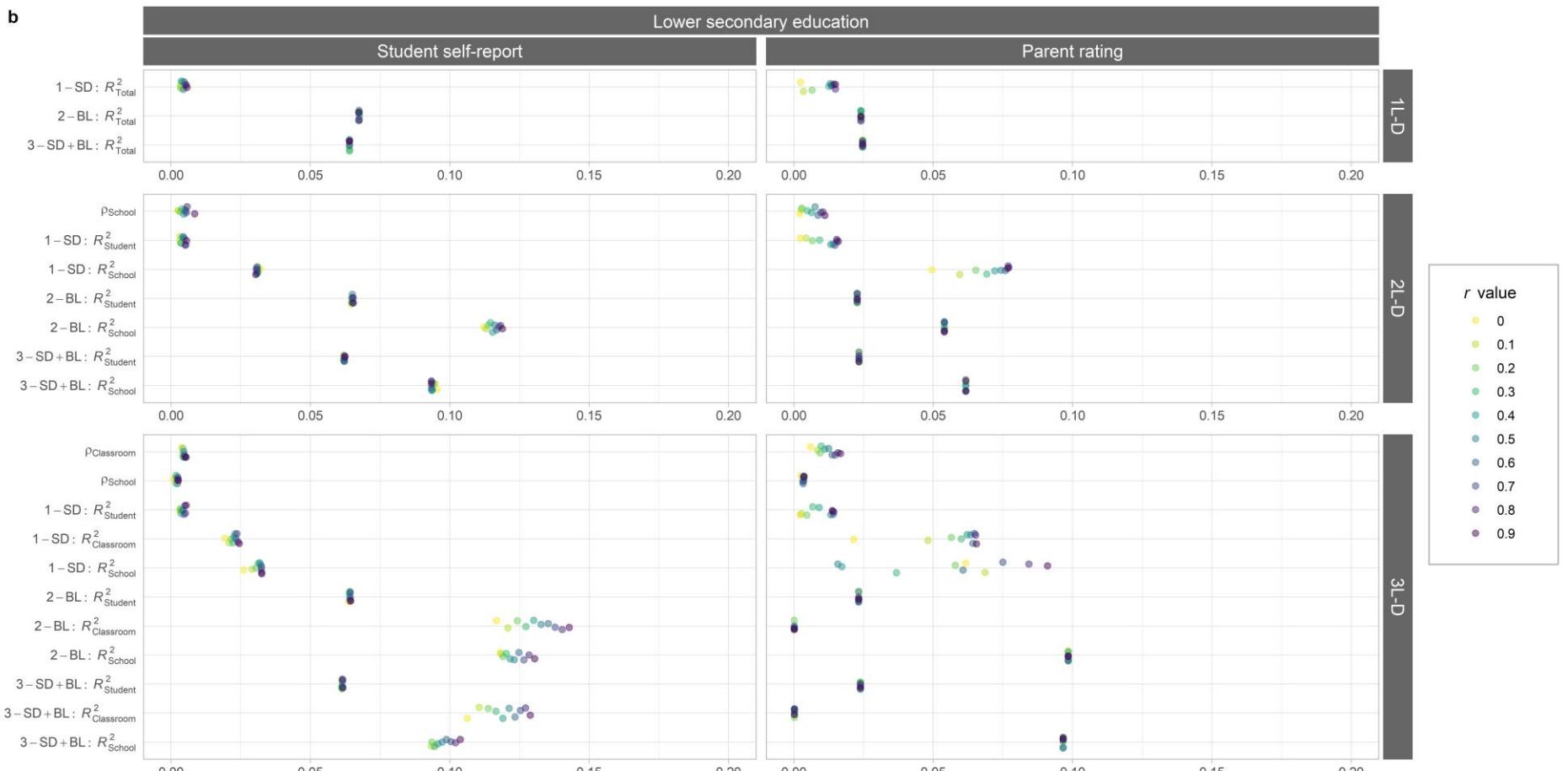
Figure A4.2

Sensitivity Analysis of the Meta-Analytic Integration—Academic Track: (a) Meta-Analytic Averages ($\hat{\theta}$), (b) Standard Errors (SE), (c) Within-Sample Heterogeneity (τ^2_{Within}), and (d) Between-Sample Heterogeneity ($\tau^2_{Between}$) for Varying Within-Sample Effect Size Dependencies r
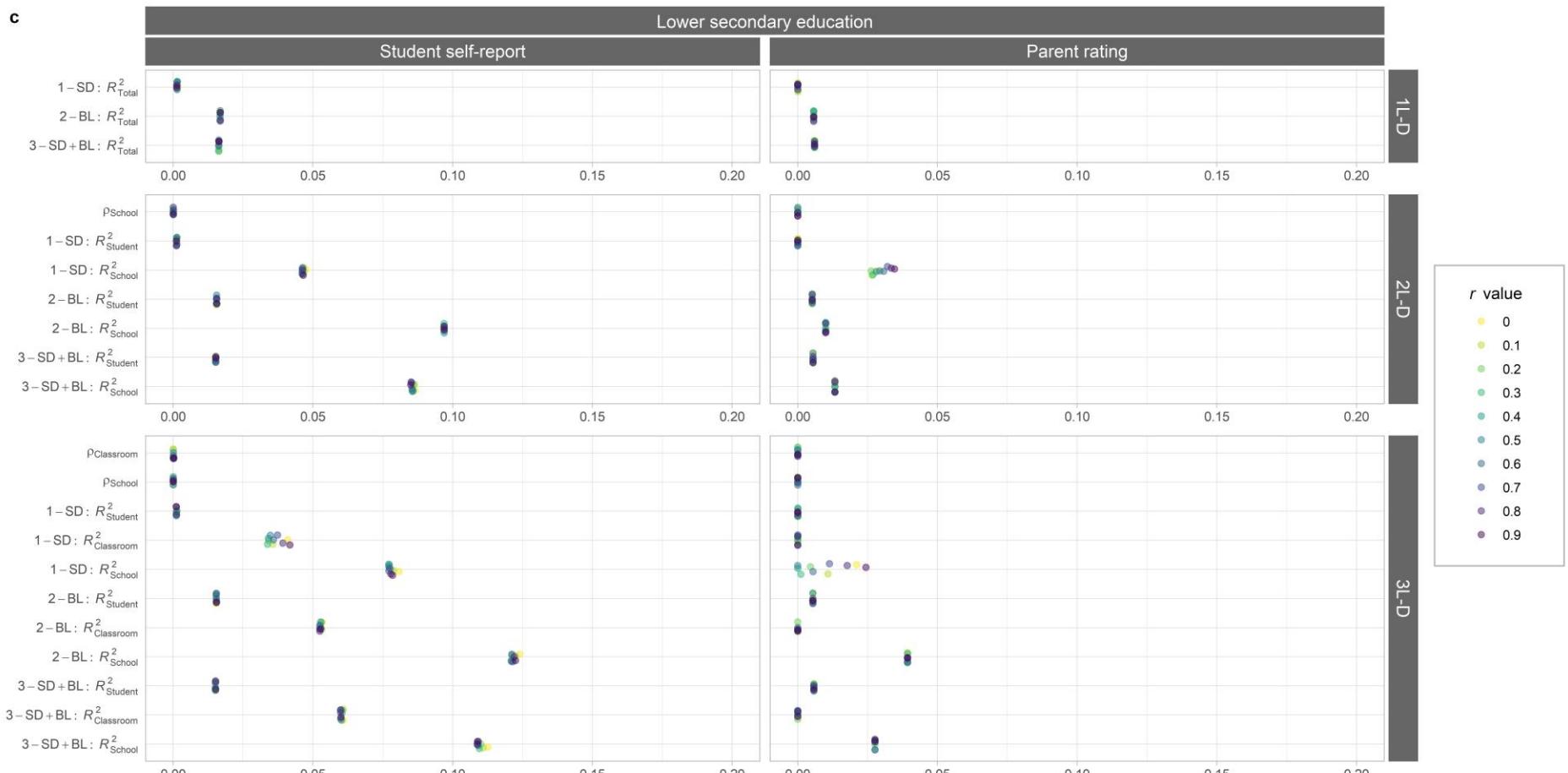
(Figure continues)

Figure A4.2 *(continued)*
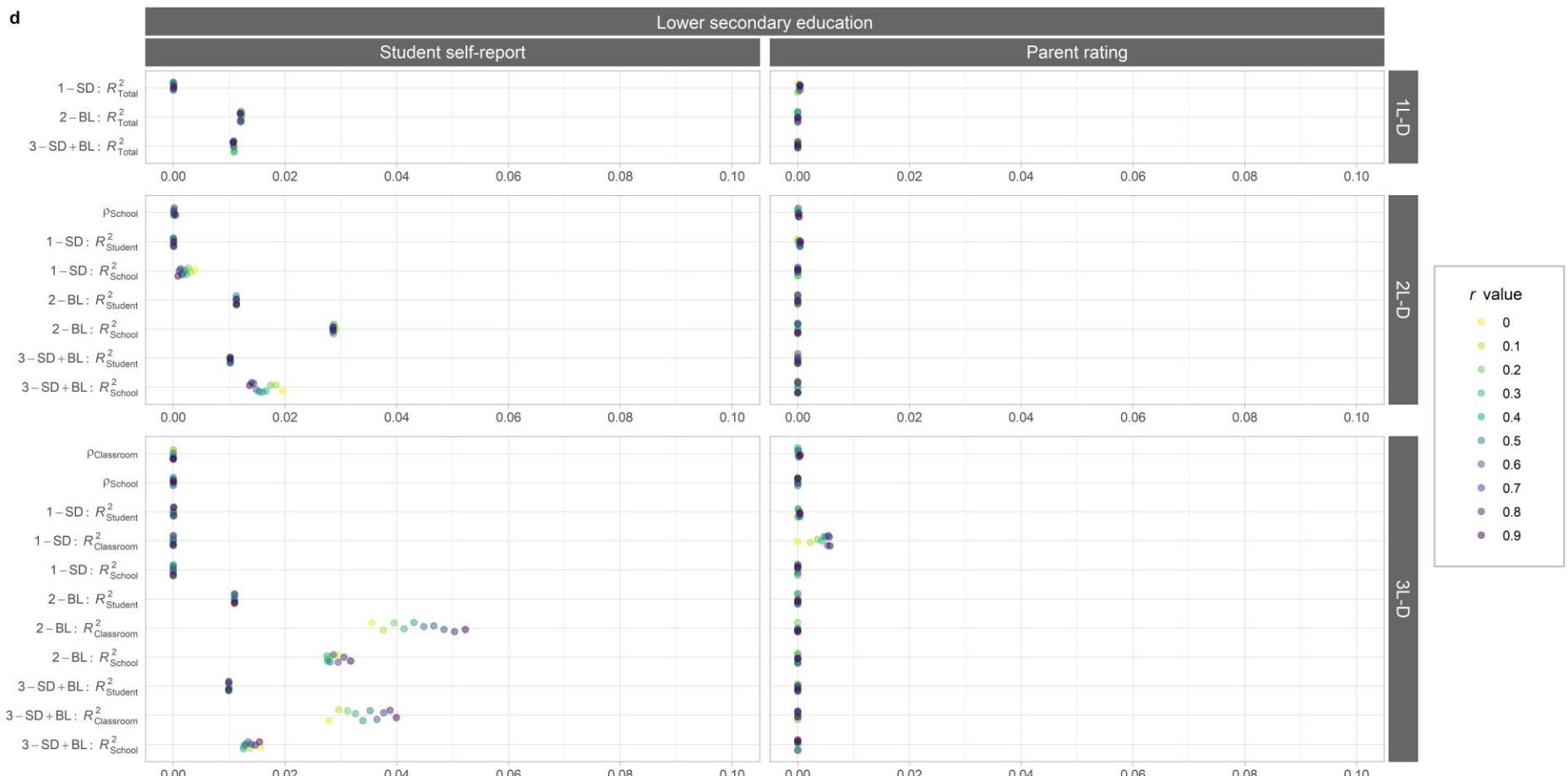
(Figure continues)

Figure A4.2 *(continued)*
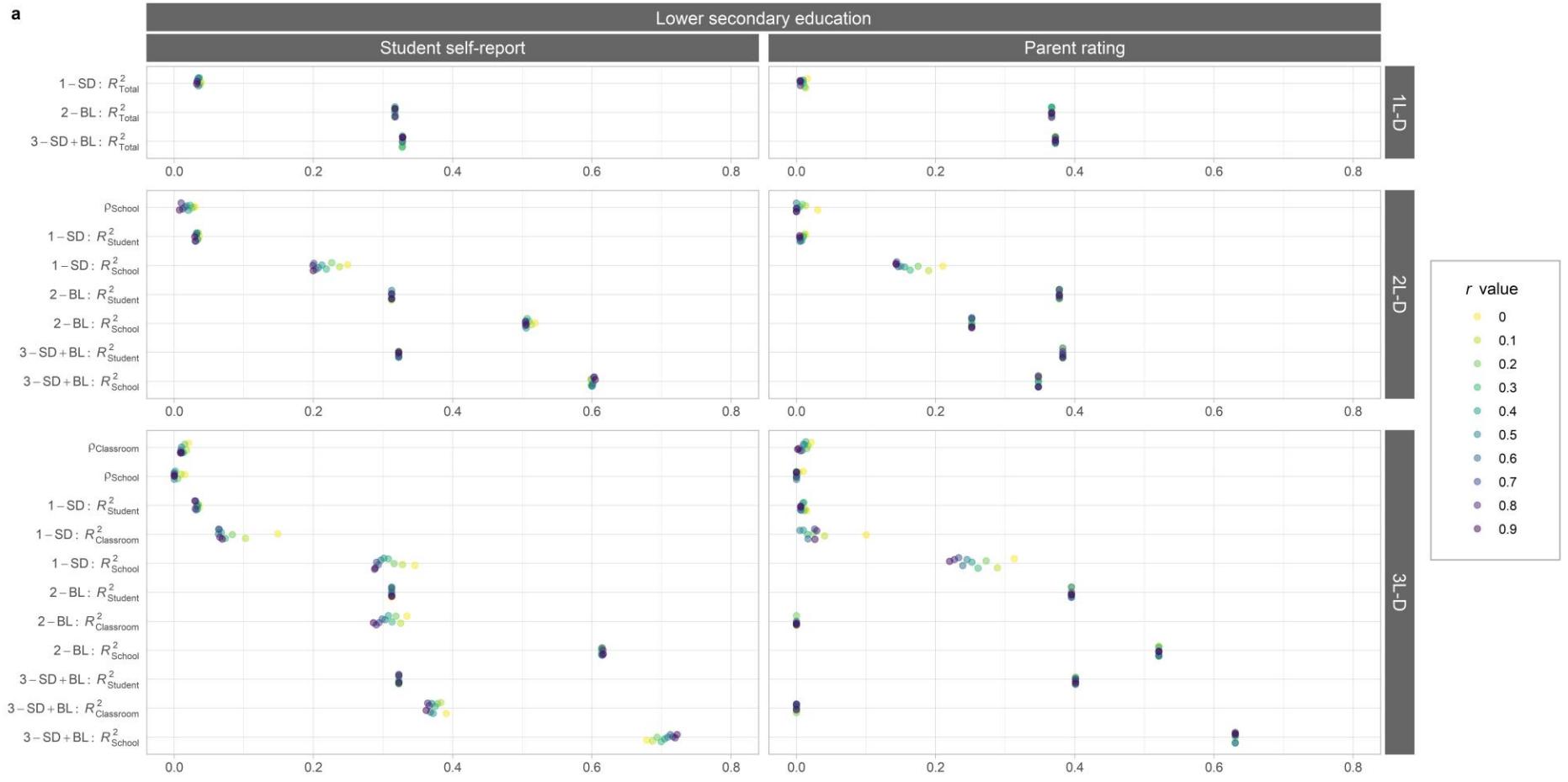
(Figure continues)

Figure A4.2 *(continued)*

Note. 1L-D = Single-level design. 2L-D = Two-level design. 3L-D = Three-level design. The meta-analytic summaries are based on model set MA-1. 1-SD = Model Set 1 with sociodemographic characteristics as covariates. 2-BL = Model Set 2 with a baseline measure as covariate. 3-SD+BL = Model Set 3 with sociodemographic characteristics plus a baseline measure as covariates.
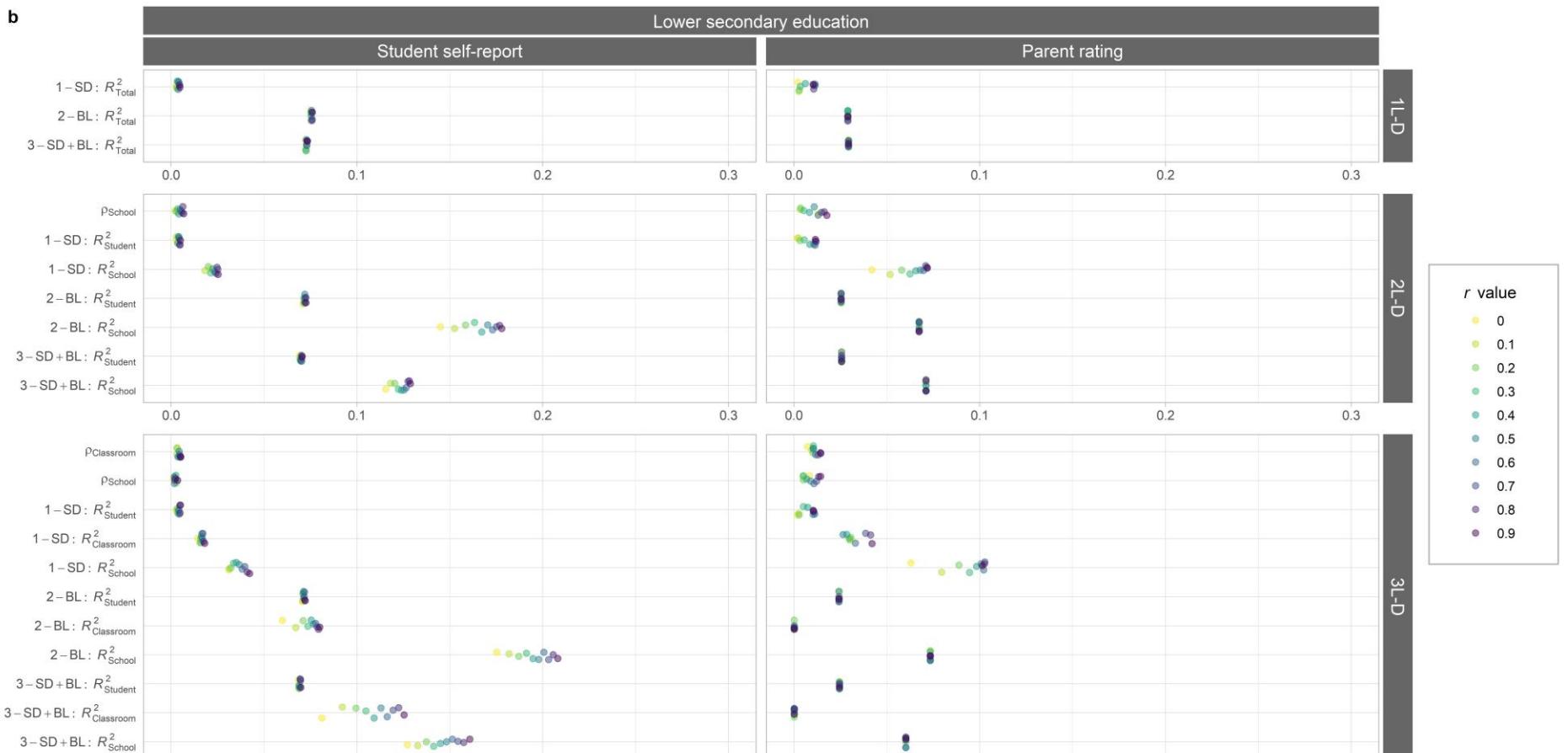
Figure A4.3

Sensitivity Analysis of the Meta-Analytic Integration—Non-Academic Track: (a) Meta-Analytic Averages ($\hat{\theta}$), (b) Standard Errors (SE), (c) Within-Sample Heterogeneity (τ^2_{Within}), and (d) Between-Sample Heterogeneity ($\tau^2_{Between}$) for Varying Within-Sample Effect Size Dependencies r
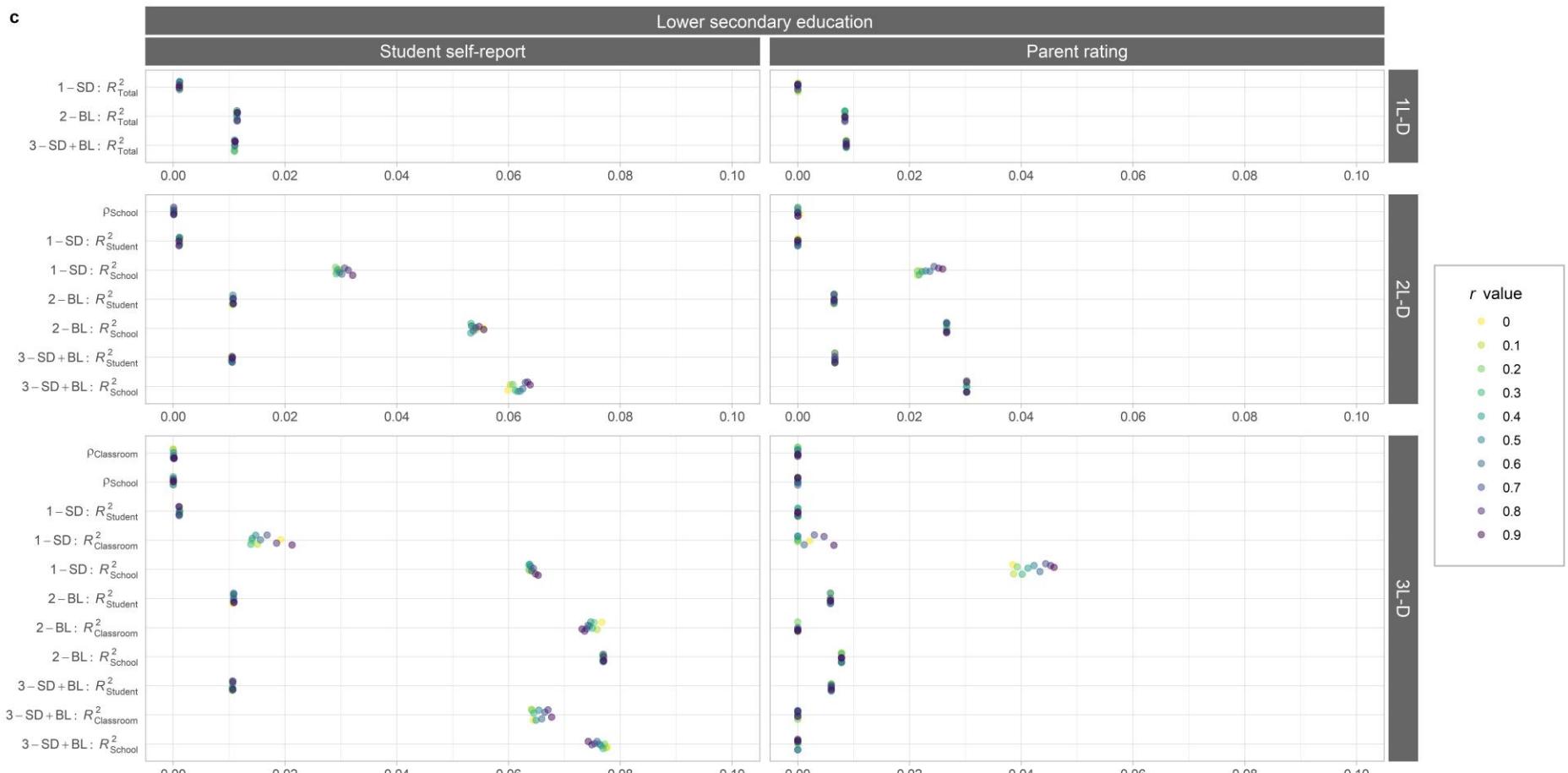
(Figure continues)

Figure A4.3 *(continued)*
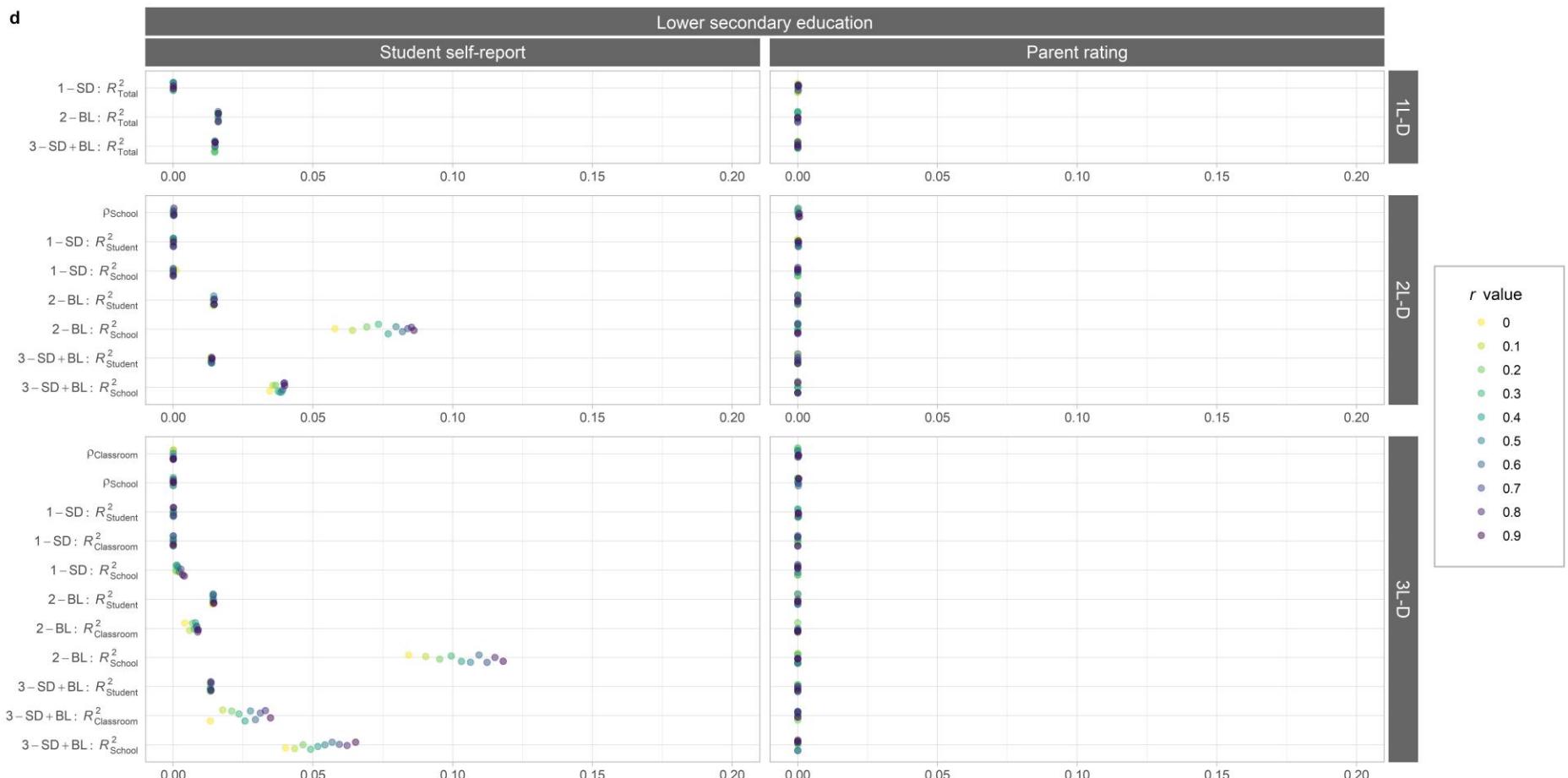
(Figure continues)

Figure A4.3 *(continued)*

(Figure continues)

Figure A4.3 *(continued)*

Note. 1L-D = Single-level design. 2L-D = Two-level design. 3L-D = Three-level design. The meta-analytic summaries are based on model set MA-1. 1-SD = Model Set 1 with sociodemographic characteristics as covariates. 2-BL = Model Set 2 with a baseline measure as covariate. 3-SD+BL = Model Set 3 with sociodemographic characteristics plus a baseline measure as covariates.

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