

Supplementary Material for

“Stability in Student Well-being and Educational Disparities Across the Pandemic: A Latent Profile Analysis of PISA 2018 and 2022 in Finland, Sweden, and Iceland”

Juuso Repo, David Reimer, and Elina Kilpi-Jakonen

Table S1. Sample Sizes by Country and Cohort

Country	N 2018	% 2018	N 2022	% 2022
FIN	5,452	39.4%	10,036	52.0%
ISL	3,112	22.5%	3,307	17.1%
SWE	5,288	38.2%	5,952	30.8%

Note. Total *N* (2018) = 13,852, Total *N* (2022) = 19,295

Table S2. Intercorrelations in the 2018 Sample

Variable	2	3	4	5	6	7	8	9
1 Gender (male=1)	-.00	.00	.00	-.09	.19	.09	-.19	.00
2 Immigrant (1st.gen.)		-.05	-.13	-.04	.00	-.00	-.10	-.11
3 Immigrant (2nd.gen.)			-.17	-.10	-.03	-.06	-.19	-.17
4 ESCS				.08	.10	.09	.27	.35
5 School attendance					.19	.13	.27	.25
6 Life satisfaction						.37	.04	.07
7 School belonging							.08	.09
8 Reading								.85
9 Math								

N = 11,499 with complete cases.

Table S3. Intercorrelations in the 2022 Sample

Variable	2	3	4	5	6	7	8	9
1 Gender (male=1)	-.01	-.00	.00	-.01	.25	.17	-.17	.03
2 Immigrant (1st.gen.)		-.09	-.15	-.06	.01	.01	-.11	-.12
3 Immigrant (2nd.gen.)			-.25	-.08	.01	-.09	-.25	-.19
4 ESCS				.09	.06	.10	.34	.37
5 School attendance					.19	.12	.22	.23
6 Life satisfaction						.39	-.03	.04
7 School belonging							.07	.10
8 Reading								.85
9 Math								

N= 17727 with complete cases.

Table S4. Descriptive Statistics and Cohort Comparison by Country

	Country	<i>N</i>	Range	NA %	2018 <i>M</i> (<i>SD</i>)	2022 <i>M</i> (<i>SD</i>)	<i>t</i>	<i>d</i>
Gender (1=male)	FIN	15 488	0-1	0.0%	0.50 (0.50)	0.51 (0.50)	0.90	0.02
	ISL	6 419	0-1	0.0%	0.49 (0.50)	0.51 (0.50)	1.83	0.05
	SWE	11 240	0-1	0.0%	0.49 (0.50)	0.51 (0.50)	1.49	0.03
Immigrant (1st gen.)	FIN	15 252	0-1	1.5%	0.02 (0.15)	0.08 (0.27)	14.01	0.25
	ISL	6 300	0-1	1.9%	0.02 (0.16)	0.03 (0.18)	2.16	0.05
	SWE	10 930	0-1	2.8%	0.10 (0.30)	0.11 (0.31)	0.69	0.01
Immigrant (2nd gen.)	FIN	15 252	0-1	1.5%	0.03 (0.18)	0.10 (0.30)	15.76	0.29
	ISL	6 300	0-1	1.9%	0.03 (0.17)	0.04 (0.19)	1.62	0.04
	SWE	10 930	0-1	2.8%	0.09 (0.29)	0.10 (0.30)	2.47	0.05
ESCS	FIN	15 330	-7-5	1.0%	0.31 (0.78)	0.20 (0.85)	-7.98	-0.14
	ISL	6 376	-7-3	0.7%	0.55 (0.81)	0.38 (0.78)	-8.33	-0.21
	SWE	11 084	-5-5	1.4%	0.37 (0.89)	0.33 (0.85)	-2.01	-0.04
School attendance	FIN	14 839	-3-1	4.2%	-0.00 (1.00)	0.00 (1.00)	0.08	0.00
	ISL	5 758	-3-1	10.3%	-0.00 (1.03)	0.00 (0.98)	0.28	0.01
	SWE	10 696	-3-1	4.8%	0.04 (0.99)	-0.03 (1.01)	-3.54	-0.07
Life satisfaction	FIN	15 242	-3-1	1.6%	0.07 (0.98)	-0.04 (1.01)	-6.68	-0.11
	ISL	6 234	-3-1	2.9%	0.09 (0.98)	-0.08 (1.02)	-6.72	-0.17
	SWE	11 105	-3-1	1.2%	0.02 (1.02)	-0.02 (0.98)	-1.99	-0.04
School belonging	FIN	15 000	-3-2	3.2%	-0.05 (0.98)	0.03 (1.01)	4.18	0.07
	ISL	6 084	-3-1	5.2%	-0.06 (1.05)	0.06 (0.95)	4.81	0.12
	SWE	10 808	-3-1	3.8%	-0.04 (0.99)	0.03 (1.01)	3.89	0.08
Reading	FIN	15 488	141-791	0.0%	523.71 (94.12)	479.39 (101.35)	-26.64	-0.45
	ISL	6 419	182-743	0.0%	477.91 (99.86)	436.93 (95.48)	-16.81	-0.42
	SWE	11 240	151-822	0.0%	508.85 (101.79)	489.02 (103.80)	-10.20	-0.19
Math	FIN	15 488	224-757	0.0%	509.78 (74.40)	476.49 (88.28)	-23.65	-0.41
	ISL	6 419	240-724	0.0%	499.48 (80.23)	460.03 (83.53)	-19.28	-0.48
	SWE	11 240	150-764	0.0%	504.62 (83.45)	483.54 (91.43)	-12.71	-0.24

d = Effect size (Cohen's d), NA = missing value

Table S5. Comparison of Class Solutions in the 2018 Cohort

Model	Latent class	N (%)	Belonging	Attendance	Life satisfaction	BIC
Three classes						77768.7
	1	3837 (28%)	-0.318	-1.156	-0.346	
	2	3347 (24%)	0.119	0.052	0.221	
	3	6668 (48%)	0.046	0.778	0.202	
Four classes						74723.6
	1	3828 (28%)	-0.282	-1.201	-0.289	
	2	3599 (26%)	0.093	0.052	0.184	
	3	4570 (33%)	0.425	0.776	0.612	
	4	1855 (13%)	-0.675	0.782	-0.608	
Five classes						72412.9
	1	1932 (14%)	-0.663	0.782	-0.593	
	2	3738 (27%)	0.073	0.052	0.152	
	3	1983 (14%)	-0.712	-1.568	-0.833	
	4	4565 (33%)	0.428	0.776	0.614	
	5	1634 (12%)	0.298	-0.791	0.461	

BIC = Bayesian Information Criterion.

Table S6. Comparison of Class Solutions in the 2022 Cohort

Model	Latent class	N (%)	Belonging	Attendance	Life satisfaction	BIC
Three classes						118433.1
	1	5851 (30%)	-0.241	-1.07	-0.351	
	2	8710 (45%)	0.093	0.791	0.181	
	3	4734 (25%)	0.186	0.077	0.172	
Four classes						114657.5
	1	5719 (30%)	-0.196	-1.118	-0.299	
	2	4923 (26%)	0.147	0.077	0.134	
	3	5873 (30%)	0.504	0.789	0.577	
	4	2780 (14%)	-0.64	0.793	-0.556	
Five classes						111339.7
	1	2802 (15%)	-0.645	-1.569	-0.774	
	2	2743 (14%)	0.339	-0.699	0.278	
	3	5874 (30%)	0.506	0.789	0.579	
	4	2820 (15%)	-0.626	0.793	-0.544	
	5	5058 (26%)	0.113	0.077	0.092	

BIC = Bayesian Information Criterion.

Table S7. Model Fit Indices and Invariance Testing of Multigroup LPA Models.

Model	Parameters	BIC	aBIC	Decision
Unconstrained	55	226 656.30	226 481.51	Accept
Mean-constrained	43	225 494.18	225 357.52	Accept
Mean- and variance-constrained	31	225 421.13	225 322.61	Accept
Mean- and profile size-constrained	28	225 403.22	225 314.24	Accept

Table S8. Model Fit Comparison for Conditional Models with Control Variables.

Model	Parameters	BIC	aBIC
Controls free, read	69	508 865.7	508 646.4
Controls similar, read	54	508 794.5	508 622.9
Controls free, math	69	499 813.8	499 594.5
Controls similar, math	54	499 744.4	499 572.8

Smaller BIC and aBIC values indicate better model fit.

SUPPLEMENTARY FIGURES

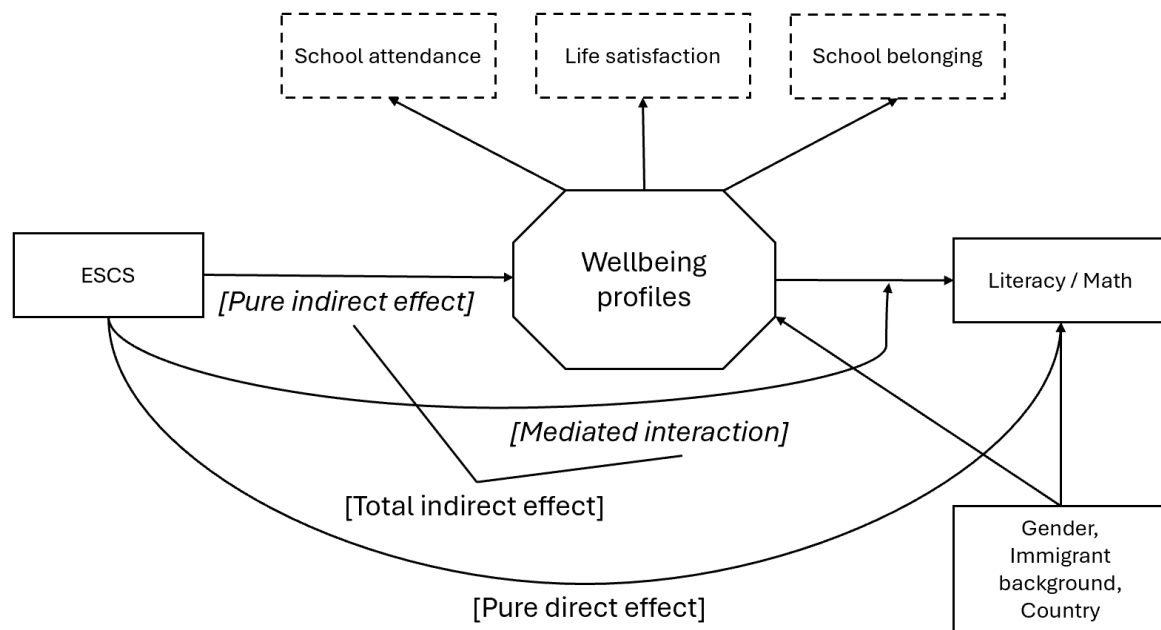


Figure S1. Directed acyclic graph (DAG) with additional labels to identify the direct and indirect effects and form latent profiles. The total effect of ESCS on literacy/math scores is decomposed into pure direct and total indirect effects through well-being, adjusting for confounders and accounting for ESCS – well-being interaction. The total indirect effect is further decomposed into pure indirect effect and mediated interaction effect.

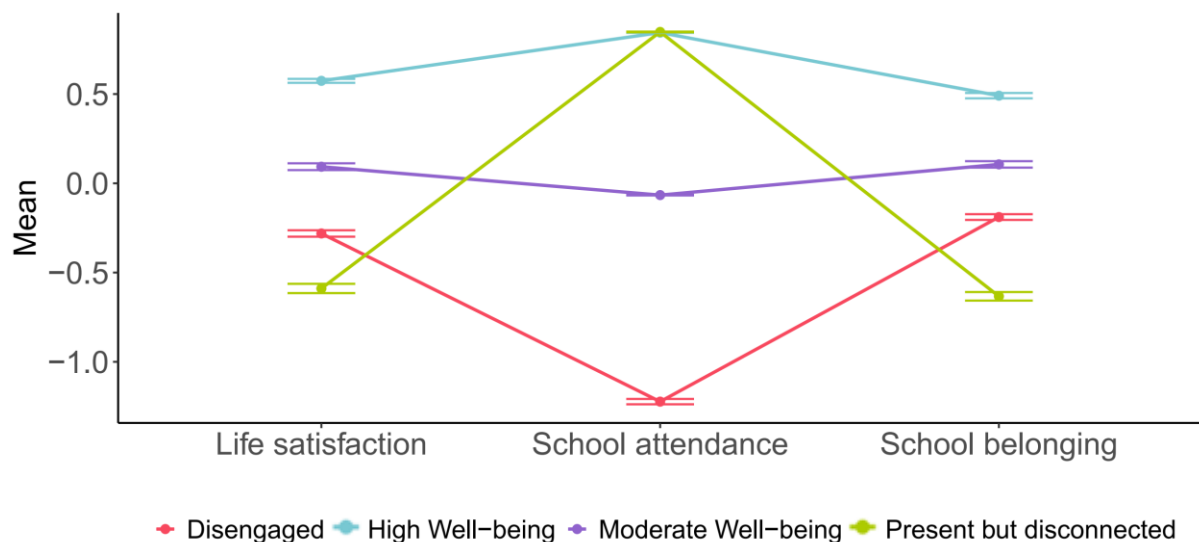


Figure S2. Profile means in the full sample.