Online Appendix 1

Table A1 – Comparison of unmatched and matched students in Microdata of Statistics Netherlands

Randomisation full sample	atistics Netherland			tistics Netherlands sa					
	Average	SD	Obs	Average	SD	Obs	Average difference	T-Stat	P-avlue
Primary school ability test total score	535.86	9.34	339	536.39	8.94	2086	-0.54	-1.02	0.31
Female	0.54	0.50	339	0.56	0.50	2086	-0.02	-0.72	0.47
Birth country (0=NL, 1=other)	0.92	0.27	339	0.98	0.15	2086	-0.05	-5.19	0.00
Age (in full years)	12.94	1.08	339	12.92	0.96	2086	0.02	0.33	0.74
Situation at home (0=both parents at home, 1=parents divorced or one parent deceased)	0.80	0.40	339	0.84	0.37	2086	-0.04	-1.86	0.06
school	1.43	0.50	339	1.50	0.50	2086	-0.07	-2.27	0.02
Socio Econ Status at neighborhood level	-0.03	0.81	332	-0.06	0.87	2081	0.02	0.45	0.65
Grade 7	0.39	0.49	339	0.35	0.48	2086	0.04	1.34	0.18
Grade 8	0.29	0.46	339	0.35	0.48	2086	-0.06	-2.08	0.04
Grade 9	0.31	0.46	339	0.29	0.45	2086	0.02	0.76	0.45

Table A2 – Comparison of students that did and did not fill out the student questionnaire

Student Questionnaire	Did not fill out			Filled out					
TOTAL	Average	SD	Obs	Average	SD	Obs	Average difference	T-Stat	P-avlue
Primary school ability test total score	535.55	9.39	708	536.83	8.67	1378	-1.28	-3.10	0.00
Female	0.57	0.50	708	0.56	0.50	1378	0.01	0.64	0.52
Birth country (0=NL, 1=other)	0.97	0.17	708	0.98	0.14	1378	-0.01	-1.22	0.22
Age (in full years)	12.95	1.00	708	12.90	0.94	1378	0.05	1.22	0.22
Situation at home (0=both parents at home, 1=parents divorced or one parent deceased)	0.78	0.42	708	0.87	0.33	1378	-0.10	-5.67	0.00
school	1.71	0.46	708	1.39	0.49	1378	0.31	14.13	0.00
Socio Econ Status at neighborhood level	-0.21	1.01	707	0.02	0.78	1374	-0.23	-5.84	0.00
Grade 7	0.36	0.48	708	0.35	0.48	1378	0.01	0.37	0.71
Grade 8	0.32	0.47	708	0.37	0.48	1378	-0.05	-2.40	0.02
Grade 9	0.32	0.47	708	0.28	0.45	1378	0.04	2.13	0.03
Father has a job	0.85	0.36	708	0.90	0.30	1378	-0.05	-3.71	0.00
Mother has a job	0.80	0.40	708	0.85	0.36	1378	-0.05	-3.17	0.00
Household income	174655.44	1063759.80	708	228298.04	663970.53	1378	-53642.60	-1.41	0.16
Income father	53720.82	47774.91	669	52591.43	38526.13	1346	1129.39	0.57	0.57
Income mother	21769.36	19198.34	704	22968.19	27335.84	1366	-1198.82	-1.04	0.30
Number of people in the household	4.12	0.98	708	4.25	1.01	1378	-0.13	-2.70	0.01
Number of children in the household	2.27	0.83	708	2.29	0.77	1378	-0.03	-0.80	0.42
Number of parents born abroad	0.28	0.64	708	0.18	0.50	1378	0.10	4.08	0.00
Generation of immigrant child	0.34	0.73	708	0.24	0.63	1378	0.10	3.38	0.00
Birth year mother	1969.42	4.40	708	1969.35	3.87	1378	0.07	0.36	0.72
Birth year father	1966.63	4.92	698	1966.90	4.54	1364	-0.28	-1.27	0.20
Full Time Equivalent mother (0 if no job)	0.36	0.34	708	0.40	0.33	1378	-0.04	-2.36	0.02
Full Time Equivalent father (0 if no job)	0.60	0.47	708	0.65	0.46	1378	-0.05	-2.12	0.03
Educational level mother: primary or lower se	0.13	0.33	708	0.09	0.28	1378	0.04	2.98	0.00
Educational level mother: upper secondary or	0.25	0.43	708	0.25	0.43	1378	0.00	-0.16	0.87
Educational level mother: higher education	0.17	0.37	708	0.19	0.39	1378	-0.02	-0.96	0.34
Educational level mother: missing	0.46	0.50	708	0.48	0.50	1378	-0.02	-0.92	0.36
Socio Econ Status child	35890.34	34550.45	708	38625.11	28132.06	1378	-2734.77	-1.94	0.05

Table A3 – Comparison of parents that did and did not fill out the parental questionnaire

Parental Questionnaire	Did not fill out			Filled out					
TOTAL	Average	SD	Obs	Average	SD	Obs	Average dif	T-Stat	P-avlue
Primary school ability test total score	535.56	9.13	1408	538.13	8.29	678	-2.57	-6.21	0.00
Female	0.55	0.50	1408	0.57	0.49	678	-0.02	-0.82	0.41
Birth country (0=NL, 1=other)	0.97	0.16	1408	0.98	0.13	678	-0.01	-1.30	0.19
Age (in full years)	13.04	0.95	1408	12.65	0.95	678	0.39	8.85	0.00
Situation at home (0=both parents at home, 1=parents divorced or one parent deceased)	0.82	0.38	1408	0.88	0.32	678	-0.06	-3.65	0.00
school	1.53	0.50	1408	1.44	0.50	678	0.08	3.56	0.00
Socio Econ Status at neighborhood level	-0.08	0.91	1403	0.00	0.79	678	-0.08	-2.05	0.04
Grade 7	0.30	0.46	1408	0.47	0.50	678	-0.17	-7.57	0.00
Grade 8	0.37	0.48	1408	0.32	0.47	678	0.05	2.17	0.03
Grade 9	0.33	0.47	1408	0.21	0.41	678	0.12	5.62	0.00
Father has a job	0.86	0.34	1408	0.93	0.25	678	-0.07	-4.56	0.00
Mother has a job	0.81	0.40	1408	0.89	0.31	678	-0.08	-4.84	0.00
Household income	204859.13	928233.99	1408	220957.36	538092.04	678	-16098.23	-0.42	0.68
Income father	53022.87	45329.66	1346	52852.77	33683.22	669	170.11	0.09	0.93
Income mother	22184.27	20164.10	1396	23339.67	32525.44	674	-1155.40	-0.99	0.32
Number of people in the household	4.23	1.09	1408	4.15	0.81	678	0.09	1.88	0.06
Number of children in the household	2.32	0.83	1408	2.21	0.70	678	0.11	2.92	0.00
Number of parents born abroad	0.25	0.59	1408	0.14	0.46	678	0.11	4.15	0.00
Generation of immigrant child	0.31	0.71	1408	0.18	0.56	678	0.13	4.32	0.00
Birth year mother	1969.34	4.18	1408	1969.46	3.80	678	-0.12	-0.64	0.52
Birth year father	1966.63	4.78	1387	1967.17	4.42	675	-0.54	-2.47	0.01
Full Time Equivalent mother (0 if no job)	0.37	0.34	1408	0.41	0.32	678	-0.03	-2.07	0.04
Full Time Equivalent father (0 if no job)	0.61	0.47	1408	0.68	0.45	678	-0.08	-3.58	0.00
Educational level mother: primary or lower se	0.11	0.31	1408	0.09	0.28	678	0.02	1.33	0.18
Educational level mother: upper secondary or	0.25	0.43	1408	0.24	0.43	678	0.02	0.76	0.45
Educational level mother: higher education	0.16	0.37	1408	0.21	0.41	678	-0.05	-2.86	0.00
Educational level mother: missing	0.48	0.50	1408	0.46	0.50	678	0.02	0.73	0.46
Socio Econ Status child	36794.34	31918.07	1408	39571.28	27184.85	678	-2776.94	-1.95	0.05

Table A4 – Comparison of treatment and control group based on observable characteristics

Randomisation full sample	Control group			Treatment Group					
TOTAL	Average	SD	Obs	Average	SD	Obs	Average difference	T-Stat	P-avlue
Primary school ability test total score	536.22	9.16	934	536.53	8.77	1152	-0.30	-0.77	0.44
Female	0.56	0.50	934	0.56	0.50	1152	-0.01	-0.25	0.80
Birth country (0=NL, 1=other)	0.97	0.16	934	0.98	0.14	1152	-0.01	-1.04	0.30
Age (in full years)	12.91	0.97	934	12.92	0.96	1152	-0.01	-0.26	0.80
Situation at home (0=both parents at home, 1=parents divorced or one parent deceased)	0.82	0.38	934	0.85	0.35	1152	-0.03	-1.74	0.08
school	1.54	0.50	934	1.47	0.50	1152	0.07	3.35	0.00
Socio Econ Status at neighborhood level	-0.08	0.90	931	-0.04	0.84	1150	-0.04	-0.97	0.33
Grade 7	0.36	0.48	934	0.35	0.48	1152	0.00	0.15	0.88
Grade 8	0.35	0.48	934	0.35	0.48	1152	0.00	-0.05	0.96
Grade 9	0.29	0.45	934	0.29	0.46	1152	0.00	-0.11	0.91
Father has a job	0.89	0.31	934	0.88	0.33	1152	0.01	1.03	0.30
Mother has a job	0.83	0.38	934	0.84	0.37	1152	-0.01	-0.44	0.66
Household income	194017.91	934677.16	934	223123.28	717723.10	1152	-29105.37	-0.80	0.42
Income father	53453.29	44905.68	903	52571.02	39143.47	1112	882.27	0.47	0.64
Income mother	21426.53	17288.77	922	23471.18	29561.52	1148	-2044.65	-1.86	0.06
Number of people in the household	4.16	0.90	934	4.24	1.08	1152	-0.09	-1.98	0.05
Number of children in the household	2.26	0.75	934	2.30	0.81	1152	-0.04	-1.06	0.29
Number of parents born abroad	0.25	0.59	934	0.18	0.52	1152	0.07	2.79	0.01
Generation of immigrant child	0.32	0.71	934	0.23	0.63	1152	0.09	2.94	0.00
Birth year mother	1969.66	4.16	934	1969.14	3.96	1152	0.52	2.90	0.00
Birth year father	1967.02	4.48	923	1966.64	4.82	1139	0.38	1.85	0.06
Full Time Equivalent mother (0 if no job)	0.38	0.33	934	0.39	0.33	1152	-0.01	-0.62	0.53
Full Time Equivalent father (0 if no job)	0.62	0.47	934	0.64	0.46	1152	-0.02	-1.04	0.30
Educational level mother: primary or lower secondary education	0.11	0.32	934	0.09	0.29	1152	0.02	1.68	0.09
Educational level mother: upper secondary or vocational education	0.24	0.43	934	0.25	0.43	1152	-0.01	-0.56	0.58
Educational level mother: higher education	0.17	0.38	934	0.18	0.39	1152	-0.01	-0.63	0.53
Educational level mother: missing	0.47	0.50	934	0.47	0.50	1152	0.00	-0.05	0.96
Socio Econ Status child	36756.05	31560.32	934	38459.73	29570.16	1152	-1703.68	-1.27	0.20

Table A5 – Comparison of parents that did and did not download the app

Download app	Did not download			Downloaded					
TOTAL	Average	SD	Obs	Average	SD	Obs	Average dif	T-Stat	P-avlue
Primary school ability test total score	536.14	8.97	1678	537.41	8.78	408	-1.26	-2.56	0.01
Female	0.57	0.50	1678	0.54	0.50	408	0.03	1.09	0.27
Birth country (0=NL, 1=other)	0.97	0.16	1678	0.99	0.10	408	-0.02	-2.09	0.04
Age (in full years)	12.95	0.97	1678	12.77	0.92	408	0.19	3.49	0.00
Situation at home (0=both parents at home, 1=parents divorced or one parent deceased)	0.84	0.37	1678	0.85	0.36	408	-0.01	-0.35	0.73
school	1.46	0.50	1678	1.67	0.47	408	-0.21	-7.61	0.00
Socio Econ Status at neighborhood level	-0.05	0.86	1673	-0.09	0.90	408	0.04	0.85	0.39
Grade 7	0.34	0.47	1678	0.41	0.49	408	-0.06	-2.46	0.01
Grade 8	0.36	0.48	1678	0.34	0.47	408	0.02	0.57	0.57
Grade 9	0.30	0.46	1678	0.25	0.43	408	0.05	1.98	0.05
Father has a job	0.88	0.32	1678	0.90	0.30	408	-0.02	-1.20	0.23
Mother has a job	0.82	0.38	1678	0.88	0.32	408	-0.06	-3.00	0.00
Household income	214799.66	881472.77	1678	190727.71	508470.54	408	24071.96	0.53	0.60
Income father	52127.59	42861.19	1619	56395.76	37089.72	396	-4268.16	-1.82	0.07
Income mother	22248.10	25611.79	1663	23836.80	21560.64	407	-1588.70	-1.16	0.25
Number of people in the household	4.23	1.05	1678	4.10	0.80	408	0.13	2.30	0.02
Number of children in the household	2.31	0.81	1678	2.17	0.67	408	0.14	3.24	0.00
Number of parents born abroad	0.24	0.59	1678	0.10	0.37	408	0.14	4.69	0.00
Generation of immigrant child	0.30	0.70	1678	0.15	0.52	408	0.15	4.10	0.00
Birth year mother	1969.32	4.11	1678	1969.61	3.85	408	-0.29	-1.29	0.20
Birth year father	1966.71	4.72	1656	1967.22	4.44	406	-0.51	-1.99	0.05
Full Time Equivalent mother (0 if no job)	0.37	0.33	1678	0.44	0.32	408	-0.07	-3.60	0.00
Full Time Equivalent father (0 if no job)	0.61	0.47	1678	0.71	0.43	408	-0.10	-3.87	0.00
Educational level mother: primary or lower se	0.11	0.31	1678	0.08	0.27	408	0.03	1.70	0.09
Educational level mother: upper secondary or	0.25	0.44	1678	0.22	0.42	408	0.03	1.29	0.20
Educational level mother: higher education	0.16	0.37	1678	0.24	0.43	408	-0.08	-3.59	0.00
Educational level mother: missing	0.47	0.50	1678	0.46	0.50	408	0.02	0.60	0.55
Socio Econ Status child	37181.35	31787.07	1678	39817.30	24308.23	408	-2635.95	-1.57	0.12

Table A6 – All regression results without covariates (1st stage, ITT, OLS and 2nd stage) (appendix to Table 5)

| | First stage | | | | ITT | | | |
| | dependent: dummy whether the parents used the app | | | | dependent: Number of times the child used the homework tool | | | |
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Assignment experiment SES 1	0.140***	0.164***	0.144***	0.111***	1,018	0.989	6.020***	-5.719***
	(0.011)	(0.019)	(0.019)	(0.019)	(1,162)	(2,090)	(1,850)	(2,053)
Assignment experiment SES 2	0.211***	0.250***	0.144***	0.197***	1,576	1,971	0.315	2,908
	(0.014)	(0.025)	(0.019)	(0.026)	(1,167)	(2,061)	(1,863)	(2,113)
Assignment experiment SES 3	0.227***	0.251***	0.207***	0.218***	-0.847	0.825	0.451	-4.845**
	(0.014)	(0.025)	(0.022)	(0.025)	(1,131)	(2,121)	(1,748)	(1,963)
N	2081	740	733	608	2081	740	733	608
R-squared					0.002	0.022	0.024	0.028
F-statistic	54,35	25,20	18,61	10,44	0.627	3332,00	3542,00	3427,00

| | OLS | | | | IV/2SLS | | | |
| | dependent: Number of times the child used the homework tool | | | | dependent: Number of times the child used the homework tool | | | |
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Dummy app used SES 1	12.495***	16.376***	18.500***	-2624,000	7,125	9,869	41.805***	-51.472**
	-2210,000	-3770,000	-3376,000	-4290,000	(8,250)	(12,286)	(12,977)	(21,635)
Dummy app used SES 2	9.495***	10.001***	7.671***	9.901***	6,217	5,981	1,737	14,778
	-1693,000	-2839,000	-2725,000	-3145,000	(5,561)	(8,023)	(10,384)	(12,572)
Dummy app used SES 3	8.138***	7.748***	7.639***	8.253***	-3,382	2,941	2,179	-22.174**
	-1655,000	-2816,000	-2671,000	-3010,000	(5,006)	(8,281)	(8,537)	(10,518)
N	2081	740	733	608	2081	740	733	608
R-squared	0.041	0.070	0.069	0.028	0.014	0.060	-0.004	-0.346
F-statistic	17671,00	11005,00	10702,00	3427,00	0.635	3465,00	3444,00	2475,00

Controls = primary school ability score, gender, age, country of birth, situation at home, ses (neighborhood), mother part time, mother has a job, number of people in the household, educational level mother, individual SES, number of parents born abroad, child born abroad, school, type of education, grade level

standard errors in parentheses

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Table A7 – All regression results with logarithm of minutes practices as dependent variable (1st stage, ITT, OLS and 2nd stage) (appendix to Table 5)

	First stage				ITT			
	dependent: dummy whether the parents used the app				dependent: Number of times the child used the homework tool			
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Assignment experiment SES 1	0.140***	0.164***	0.144***	0.108***	0.038	0.193	0.358***	-0.624***
	(0.011)	(0.019)	(0.019)	(0.019)	(0.091)	(0.139)	(0.138)	(0.193)
Assignment experiment SES 2	0.211***	0.250***	0.178***	0.202***	0.091	0.148	0.036	0.129
	(0.014)	(0.025)	(0.024)	(0.026)	(0.091)	(0.137)	(0.138)	(0.196)
Assignment experiment SES 3	0.227***	0.251***	0.212***	0.230***	-0.058	0.099	0.131	-0.381**
	(0.014)	(0.025)	(0.023)	(0.025)	(0.088)	(0.141)	(0.131)	(0.184)
N	2081,00	740,00	(733,00)	608,00	2081	740	733	608
R-squared					0.114	0.141	0.176	0.106
F-statistic	54,35	25,20	18,61	10,44	10557	5123,00	6578,00	3015,00

	OLS				IV/2SLS			
	dependent: Number of times the child used the homework tool				dependent: Number of times the child used the homework tool			
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Dummy app used SES 1	0.722***	1.156***	0.872***	-0.020	0.275	1167,000	2.474***	-5.729***
	(0.173)	(0.256)	(0.258)	(0.403)	(0.643)	(0.816)	(0.958)	(-2,125)
Dummy app used SES 2	0.642***	0.608***	0.408**	0.853***	0.436	0.606	0.246	0.675
	(0.132)	(0.190)	(0.206)	(0.293)	(0.429)	(0.529)	(0.777)	(-1,152)
Dummy app used SES 3	0.573***	0.601***	0.390*	0.841***	-0.262	0.403	0.577	-1.619*
	(0.129)	(0.190)	(0.203)	(0.280)	(0.385)	(0.541)	(0.618)	(0.950)
N	2081	740	733	608	2081	740	733	608
R-squared	0.092	0.140	0.188	0.109	0.089	0.098	0.143	-0.314
F-statistic	8027,00	3530,00	7152,00	3121,00	7998	3364,00	6323,00	2050,00

Controls = primary school ability score, gender, age, country of birth, situation at home, ses (neighborhood), mother part time, mother has a job, number of people in the household, educational level mother, individual SES, number of parents born abroad, child born abroad, school, type of education, grade level

standard errors in parentheses

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Table A8 – All regression results (1st stage, ITT, OLS and 2nd stage) for boys (appendix to Table 6)

| | First stage | | | | ITT | | | |
| | dependent: dummy whether the parents used the app | | | | dependent: Number of times the child used the homework tool | | | |
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Assignment experiment SES 1	0.181***	0.209***	0.160***	0.163***	2.228	2.426	7.547**	-3.280
	(0.018)	(0.031)	(0.030)	(0.034)	(1.810)	(3.205)	(3.007)	(3.123)
Assignment experiment SES 2	0.213***	0.232***	0.153***	0.272***	1.748	4.586	-1.709	1.784
	(0.022)	(0.038)	(0.037)	(0.042)	(1.780)	(3.152)	(2.688)	(3.355)
Assignment experiment SES 3	0.218***	0.209***	0.197***	0.266***	0.242	3.237	1.158	-2.088
	(0.021)	(0.036)	(0.036)	(0.042)	(1.672)	(3.201)	(2.594)	(2.840)
N	914	344	314	256	914	344	314	256
R-squared					0.083	0.167	0.113	0.130
F-statistic	30.69	10.97	5.45	7.47	3.355	2.916	1.685	1.589

| | OLS | | | | IV/2SLS | | | |
| | dependent: Number of times the child used the homework tool | | | | dependent: Number of times the child used the homework tool | | | |
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Dummy app used SES 1	13.523***	22.676***	17.171***	-0.401	12.200	11.136	47.583**	-19.263
	(3.145)	(5.195)	(5.517)	(5.657)	(9.735)	(14.383)	(19.117)	(19.082)
Dummy app used SES 2	8.444***	12.675***	1.510	8.035*	8.292	19.970	-10.696	5.735
	(2.522)	(4.174)	(4.066)	(4.790)	(8.121)	(12.717)	(17.919)	(12.320)
Dummy app used SES 3	7.503***	11.597***	4.336	6.929*	1.035	16.187	5.328	-7.863
	(2.455)	(4.464)	(4.032)	(4.045)	(7.449)	(14.337)	(13.411)	(10.634)
N	914	344	314	256	914	344	314	256
R-squared	0.076	0.143	0.125	0.145	0.046	0.088	0.007	0.054
F-statistic	1.846	1.495	1.884	1.789	1.788	1.406	1.506	1.461

Controls = primary school ability score, gender, age, country of birth, situation at home, ses (neighborhood), mother part time, mother has a job, number of people in the household, educational level mother, individual SES, number of parents born abroad, child born abroad, school, type of education, grade level

standard errors in parentheses

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Table A9 – All regression results (1st stage, ITT, OLS and 2nd stage) for girls (appendix to Table 6)

	First stage				ITT			
	dependent: dummy whether the parents used the app				dependent: Number of times the child used the homework tool			
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Assignment experiment SES 1	0.114***	0.126***	0.139***	0.079***	0.217	-1.100	5.328**	-7.831***
	(0.014)	(0.024)	(0.025)	(0.023)	(1.528)	(2.809)	(2.334)	(2.896)
Assignment experiment SES 2	0.209***	0.258***	0.203***	0.161***	1.443	-0.368	2.541	3.224
	(0.019)	(0.033)	(0.032)	(0.035)	(1.557)	(2.749)	(2.505)	(2.840)
Assignment experiment SES 3	0.238***	0.293***	0.231***	0.194***	-1.923	-1.218	1.271	-6.145**
	(0.019)	(0.037)	(0.030)	(0.032)	(1.544)	(2.859)	(2.355)	(2.838)
N	1167	396	419	352	1167	396	419	352
R-squared					0.072	0.116	0.128	0.068
F-statistic	23.03	9.09	9.89	4.08	3.685	2.217	2.644	1.089

	OLS				IV/2SLS			
	dependent: Number of times the child used the homework tool				dependent: Number of times the child used the homework tool			
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Dummy app used SES 1	9.866***	10.578*	19.559***	-8.386	2.026	-8.744	38.991**	-95.618**
	(3.157)	(5.767)	(4.333)	(6.947)	(13.381)	(22.042)	(16.372)	(46.821)
Dummy app used SES 2	8.887***	6.624*	8.767**	10.650**	6.981	-1.461	14.244	19.658
	(2.284)	(3.940)	(3.620)	(4.311)	(7.439)	(10.530)	(12.003)	(22.614)
Dummy app used SES 3	7.264***	5.081	7.257**	9.724**	-8.168	-4.243	5.889	-32.738*
	(2.244)	(3.701)	(3.543)	(4.670)	(6.491)	(9.646)	(9.927)	(18.722)
N	1167	396	419	352	1167	396	419	352
R-squared	0.028	0.064	0.176	0.064	0.046	0.097	0.129	-0.634
F-statistic	2.237	1.764	3.852	1.014	2.278	1.829	2.648	0.621

Controls = primary school ability score, gender, age, country of birth, situation at home, ses (neighborhood), mother part time, mother has a job, number of people in the household, educational level mother, individual SES, number of parents born abroad, child born abroad, school, type of education, grade level

standard errors in parentheses

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Table A10 – All regression results (1st stage, ITT, OLS and 2nd stage) for mathematics (appendix to Table 7)

	First stage				ITT			
	dependent: dummy whether the parents used the app				dependent: Number of times the child used the homework tool			
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Assignment experiment SES 1	0.149***	0.189***	0.162***	0.091***	1.472	0.560	4.788**	0.621
	(0.012)	(0.020)	(0.021)	(0.018)	(1.030)	(1.373)	(1.981)	(1.604)
Assignment experiment SES 2	0.217***	0.259***	0.184***	0.204***	1.855*	0.385	5.498***	-1.311
	(0.015)	(0.026)	(0.025)	(0.028)	(1.000)	(1.300)	(1.927)	(1.581)
Assignment experiment SES 3	0.227***	0.237***	0.213***	0.244***	0.150	0.148	0.139	1.793
	(0.015)	(0.026)	(0.024)	(0.027)	(0.962)	(1.332)	(1.816)	(1.468)
N	1920	678	677	565	1920	678	677	565
R-squared					0.906	0.425	0.531	0.574
F-statistic	55.07	27.05	17.32	8.18	701.936	20.106	30.772	30.305

	OLS				IV/2SLS			
	dependent: Number of times the child used the homework tool				dependent: Number of times the child used the homework tool			
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Dummy app used SES 1	2.170	1.817	4.974	1.251	9.925	2.977	29.713**	6.042
	(1.954)	(2.474)	(3.557)	(3.656)	(6.963)	(7.140)	(13.615)	(17.322)
Dummy app used SES 2	-1.456	0.463	-1.481	-4.037*	8.594*	1.563	30.264***	-6.472
	(1.452)	(1.812)	(2.874)	(2.347)	(4.661)	(4.938)	(11.640)	(7.666)
Dummy app used SES 3	1.790	3.129*	0.961	0.953	0.513	0.650	-0.096	7.445
	(1.428)	(1.873)	(2.832)	(2.200)	(4.290)	(5.516)	(9.459)	(5.942)
N	1920	678	677	565	1920	678	677	565
R-squared	0.906	0.428	0.523	0.575	0.903	0.426	0.398	0.566
F-statistic	701.244	20.332	29.760	30.399	678.403	20.130	23.984	29.720

Controls = pretest, primary school ability score, gender, age, country of birth, situation at home, ses (neighborhood), mother part time, mother has a job, number of people in the household, educational level mother, individual SES, number of parents born abroad, child born abroad, school, type of education, grade level

standard errors in parentheses

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Table A11 – All regression results (1st stage, ITT, OLS and 2nd stage) for language (appendix to Table 7)

	First stage				ITT			
	dependent: dummy whether the parents used the app				dependent: Number of times the child used the homework tool			
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Assignment experiment SES 1	0.151***	0.174***	0.167***	0.115***	-2.473	3.627*	-2.070	-6.147**
	(0.012)	(0.021)	(0.022)	(0.021)	(1.910)	(2.122)	(3.685)	(2.482)
Assignment experiment SES 2	0.205***	0.237***	0.188***	0.183***	-0.139	-0.339	1.619	1.761
	(0.016)	(0.028)	(0.028)	(0.028)	(1.859)	(1.944)	(3.667)	(2.481)
Assignment experiment SES 3	0.224***	0.196***	0.248***	0.242***	-0.783	-2.355	0.517	3.003
	(0.015)	(0.026)	(0.026)	(0.028)	(1.756)	(1.958)	(3.407)	(2.232)
N	1709	599	596	514	1709	599	596	514
R-squared					0.676	0.575	0.561	0.856
F-statistic	49.29	18.63	14.79	9.69	134.674	32.394	30.438	121.186

	OLS				IV/2SLS			
	dependent: Number of times the child used the homework tool				dependent: Number of times the child used the homework tool			
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Dummy app used SES 1	0.785	-2.213	5.314	1.830	-16.349	21.300*	-12.389	-54.861**
	(3.604)	(3.927)	(6.595)	(5.187)	(12.660)	(12.486)	(21.758)	(24.071)
Dummy app used SES 2	1.788	3.832	-0.857	-2.681	-0.768	-0.700	8.367	7.840
	(2.706)	(2.776)	(5.227)	(3.817)	(9.067)	(8.437)	(19.222)	(15.136)
Dummy app used SES 3	-1.832	-0.962	-0.976	3.048	-3.529	-11.630	2.254	13.017
	(2.654)	(2.996)	(5.156)	(3.339)	(7.852)	(10.214)	(13.579)	(10.271)
N	1709	599	596	514	1709	599	596	514
R-squared	0.675	0.574	0.561	0.854	0.671	0.536	0.553	0.813
F-statistic	134.566	32.193	30.455	119.179	132.723	29.623	29.883	93.274

Controls = pretest, primary school ability score, gender, age, country of birth, situation at home, ses (neighborhood), mother part time, mother has a job, number of people in the household, educational level mother, individual SES, number of parents born abroad, child born abroad, school, type of education, grade level

standard errors in parentheses

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Table A12 – All regression results (1ˢᵗ stage, ITT, OLS and 2ⁿᵈ stage) for mathematics for girls (appendix to Table 7)

	First stage				ITT			
	dependent: dummy whether the parents used the app				dependent: Number of times the child used the homework tool			
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Assignment experiment SES 1	0.120***	0.137***	0.155***	0.070***	-0.241	0.573	2.177	-1.073
	(0.015)	(0.025)	(0.028)	(0.022)	(1.325)	(1.927)	(2.507)	(2.042)
Assignment experiment SES 2	0.213***	0.264***	0.200***	0.171***	1.500	1.098	3.259	0.311
	(0.020)	(0.035)	(0.033)	(0.037)	(1.299)	(1.826)	(2.566)	(1.916)
Assignment experiment SES 3	0.239***	0.293***	0.227***	0.204***	0.133	0.722	-1.463	1.813
	(0.020)	(0.039)	(0.032)	(0.034)	(1.290)	(1.897)	(2.428)	(1.934)
N	1078	362	387	329	1078	362	387	329
R-squared					0.908	0.431	0.525	0.555
F-statistic	22.76	9.18	9.39	3.20	413.866	11.118	17.409	16.549

	OLS				IV/2SLS			
	dependent: Number of times the child used the homework tool				dependent: Number of times the child used the homework tool			
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Dummy app used SES 1	2.123	1.449	5.635	0.842	-1.821	4.093	14.960	-16.970
	(2.716)	(3.952)	(4.489)	(5.137)	(10.966)	(13.498)	(16.287)	(29.477)
Dummy app used SES 2	-0.563	4.224	2.157	-7.548***	7.054	4.231	17.037	2.423
	(1.922)	(2.615)	(3.866)	(2.825)	(6.091)	(6.655)	(12.877)	(11.184)
Dummy app used SES 3	2.305	4.308*	0.441	2.643	0.365	2.383	-7.077	9.286
	(1.881)	(2.425)	(3.761)	(3.072)	(5.380)	(6.215)	(10.768)	(9.515)
N	1078	362	387	329	1078	362	387	329
R-squared	0.908	0.440	0.523	0.565	0.906	0.438	0.493	0.524
F-statistic	414.219	11.524	17.335	17.217	406.820	11.257	16.331	15.450

Controls = pretest, primary school ability score, gender, age, country of birth, situation at home, ses (neighborhood), mother part time, mother has a job, number of people in the household, educational level mother, individual SES, number of parents born abroad, child born abroad, school, type of education, grade level

standard errors in parentheses

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table A13 – All regression results (1ˢᵗ stage, ITT, OLS and 2ⁿᵈ stage) for mathematic for boys (appendix to Table 7)

	First stage				ITT			
	dependent: dummy whether the parents used the app				dependent: Number of times the child used the homework tool			
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Assignment experiment SES 1	0.194***	0.242***	0.176***	0.143***	3.606**	0.903	8.203**	1.503
	(0.019)	(0.034)	(0.033)	(0.033)	(1.658)	(2.028)	(3.321)	(2.699)
Assignment experiment SES 2	0.221***	0.245***	0.165***	0.258***	1.922	-0.010	8.477***	-4.419
	(0.024)	(0.041)	(0.041)	(0.044)	(1.586)	(1.899)	(2.989)	(2.841)
Assignment experiment SES 3	0.216***	0.182***	0.207***	0.281***	0.196	0.617	2.812	1.574
	(0.022)	(0.036)	(0.039)	(0.045)	(1.467)	(1.919)	(2.820)	(2.358)
N	842	316	290	236	842	316	290	236
R-squared					0.906	0.458	0.571	0.626
F-statistic	29.12	8.73	5.28	6.25	313.830	10.734	15.410	15.437

	OLS				IV/2SLS			
	dependent: Number of times the child used the homework tool				dependent: Number of times the child used the homework tool			
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Dummy app used SES 1	2.240	2.408	2.832	0.863	18.531**	3.639	42.330*	9.129
	(2.875)	(3.222)	(5.988)	(5.434)	(8.751)	(8.047)	(25.028)	(19.092)
Dummy app used SES 2	-2.619	-2.938	-5.563	1.284	8.898	0.143	51.529**	-17.086
	(2.238)	(2.566)	(4.419)	(4.135)	(7.324)	(7.459)	(24.070)	(11.169)
Dummy app used SES 3	0.926	1.414	1.762	-0.790	1.016	3.645	14.158	5.923
	(2.225)	(3.015)	(4.363)	(3.332)	(6.932)	(10.123)	(18.045)	(8.472)
N	842	316	290	236	842	316	290	236
R-squared	0.905	0.461	0.551	0.621	0.899	0.458	0.178	0.574
F-statistic	312.121	10.877	14.165	15.096	291.584	10.721	8.041	13.544

Controls = pretest, primary school ability score, gender, age, country of birth, situation at home, ses (neighborhood), mother part time, mother has a job, number of people in the household, educational level mother, individual SES, number of parents born abroad, child born abroad, school, type of education, grade level

standard errors in parentheses

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Table A14 – All regression results (1st stage, ITT, OLS and 2nd stage) for language for girls (appendix to Table 7)

| | First stage | | | | ITT | | | |
| | dependent: dummy whether the parents used the app | | | | dependent: Number of times the child used the homework tool | | | |
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Assignment experiment SES 1	0.131***	0.137***	0.181***	0.084***	-3.500	0.588	-1.205	-4.626
	(0.016)	(0.027)	(0.031)	(0.025)	(2.500)	(2.912)	(4.814)	(3.375)
Assignment experiment SES 2	0.188***	0.219***	0.202***	0.127***	-0.649	-1.031	4.649	2.279
	(0.021)	(0.035)	(0.038)	(0.037)	(2.460)	(2.641)	(5.072)	(3.207)
Assignment experiment SES 3	0.236***	0.265***	0.263***	0.197***	0.485	-2.840	-0.557	5.177*
	(0.021)	(0.039)	(0.035)	(0.036)	(2.369)	(2.660)	(4.665)	(3.105)
N	956	324	342	290	956	324	342	290
R-squared					0.679	0.587	0.540	0.854
F-statistic	22.22	8.36	9.11	3.31	78.672	18.515	16.224	67.668

| | OLS | | | | IV/2SLS | | | |
| | dependent: Number of times the child used the homework tool | | | | dependent: Number of times the child used the homework tool | | | |
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Dummy app used SES 1	1.429	1.129	7.265	7.289	-26.742	4.473	-5.823	-57.681
	(4.927)	(5.907)	(8.173)	(8.047)	(19.159)	(20.824)	(26.038)	(46.194)
Dummy app used SES 2	3.753	3.754	5.453	-1.695	-3.530	-4.944	22.750	16.697
	(3.729)	(4.058)	(7.244)	(5.172)	(13.189)	(11.847)	(24.631)	(28.743)
Dummy app used SES 3	-1.153	-0.345	2.791	3.330	1.910	-10.316	-2.993	28.267
	(3.507)	(3.671)	(6.883)	(5.015)	(10.106)	(9.869)	(17.338)	(18.183)
N	956	324	342	290	956	324	342	290
R-squared	0.679	0.586	0.541	0.852	0.666	0.569	0.528	0.794
F-statistic	78.565	18.469	16.281	66.573	75.578	17.771	15.811	47.930

Controls = pretest, primary school ability score, gender, age, country of birth, situation at home, ses (neighborhood), mother part time, mother has a job, number of people in the household, educational level mother, individual SES, number of parents born abroad, child born abroad, school, type of education, grade level

standard errors in parentheses

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Table A15 – All regression results (1st stage, ITT, OLS and 2nd stage) for language for boys (appendix to Table 7)

| | First stage | | | | ITT | | | |
| | dependent: dummy whether the parents used the app | | | | dependent: Number of times the child used the homework tool | | | |
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Assignment experiment SES 1	0.179***	0.206***	0.147***	0.178***	-1.292	7.060**	-1.759	-6.864*
	(0.020)	(0.035)	(0.032)	(0.037)	(2.989)	(3.273)	(6.046)	(3.770)
Assignment experiment SES 2	0.221***	0.232***	0.177***	0.279***	1.000	2.819	-1.052	-0.691
	(0.026)	(0.045)	(0.045)	(0.046)	(2.884)	(3.031)	(5.507)	(3.993)
Assignment experiment SES 3	0.215***	0.132***	0.251***	0.283***	-1.787	-2.335	1.935	1.509
	(0.023)	(0.035)	(0.040)	(0.046)	(2.639)	(3.019)	(5.180)	(3.252)
N	753	275	254	224	753	275	254	224
R-squared					0.681	0.589	0.618	0.877
F-statistic	24.64	14.88	4.90	7.84	62.154	15.609	16.151	61.803

| | OLS | | | | IV/2SLS | | | |
| | dependent: Number of times the child used the homework tool | | | | dependent: Number of times the child used the homework tool | | | |
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Dummy app used SES 1	-0.187	-6.976	5.966	-5.324	-7.069	34.689**	-11.444	-38.948*
	(5.375)	(5.532)	(11.798)	(6.914)	(16.466)	(17.130)	(39.694)	(21.216)
Dummy app used SES 2	0.229	5.385	-9.956	-4.319	4.457	12.670	-5.220	-4.548
	(3.969)	(4.031)	(7.696)	(5.632)	(12.860)	(14.088)	(29.878)	(14.458)
Dummy app used SES 3	-3.173	-1.125	-5.279	2.485	-8.499	-13.105	7.880	4.655
	(4.095)	(5.366)	(7.917)	(4.580)	(12.124)	(24.646)	(19.847)	(11.547)
N	753	275	254	224	753	275	254	224
R-squared	0.681	0.584	0.621	0.875	0.679	0.476	0.612	0.860
F-statistic	62.135	15.332	16.390	61.067	61.761	12.260	15.927	54.625

Controls = pretest, primary school ability score, gender, age, country of birth, situation at home, ses (neighborhood), mother part time, mother has a job, number of people in the household, educational level mother, individual SES, number of parents born abroad, child born abroad, school, type of education, grade level

standard errors in parentheses

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Online Appendix 2

Online appendix to Section 2

The digital homework practice tool ("Mousework")

The purpose of the interactive digital homework tool is to help students practice their math and language skills, while being able to individualize, and give users direct feedback (Bartelet et al., 2016; Muiswerk, 2013). Although the program is mainly being used in the Netherlands, it also has an international version and is used by several international schools both in Europe and other parts of the world. In the Netherlands, around half of the schools use the program ("Mousework") in some way, although only a small share of the schools use the program in the way it is supposed to work best, namely as a homework tool, next to regular classes that include math and language (e.g. mathematics and Dutch classes).

The program is interactive and person specific. Students work at their own level and get those exercises that will help them improve the sub-aspects of math and language they are not knowledgeable in yet, while some exercises are meant to keep up their already gathered knowledge. Students have a certain set of exercises available, covering all domains of math and language, where they choose from when they log in to the system. A pretest determines students' level of different sub-aspects of math and language, which in turn determines the types of exercises they have practice with at home[1]. At regular intervals (supposedly biweekly, but in practice once every three to four weeks), students make a short computer test at school to determine for which exercises their skills are still lacking and for which exercises their knowledge level is good enough for the moment. After every test, the number, type and level of exercises a student can choose from are adjusted to their new skill level. Apart from that, adjustment is also based on performance while practicing in the tool. The individualization

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[1] An earlier study shows that only few students do not have a computer at home to practice with (Haelermans & Ghysels, 2017). However, IP address data shows that these students have practiced with the tool at school, where there are computers available for students that do not have one at home.

therefore makes sure the right exercises are selected for the student, but in the end, until the next adjustment, the student decides in which order he practices the exercises, and whether he repeats an exercise or not. If he performs badly at an exercise, but does not choose to repeat it, it will remain in his selection of exercises, even after the adjustment.

The schools use this tool to make sure each student achieves the highest possible level of math and language, given his/her abilities, and maintains the level achieved. They offer all students online access to the tool for use after school hours, at home. The program functions in a highly individualized manner, as it starts with explanation screens (digital instruction), offers feed-back and provides the student with either repetition or new learning modules on the basis of previous performance of the individual student. It works without teacher interventions, but it does offer both teachers and parents an app where they can see the practice/homework behavior of their class/students, in case of the teacher, or of their son/daughter in case of the parents. Teachers can also use a computer to log on to the system to check upon their class, and may even incorporate knowledge of "Mousework" performance in their interaction with the students in class (but anecdotal evidence from chats at the end of the experiment showed that hardly any teacher at the two schools actually used this feature).

<u>Online appendix to Section 3</u>

Descriptive statistics of the final sample

Table B1 shows the descriptive statistics of the final sample of 2086 students[2]. The average score on the primary school ability test is 536. Note that the scores on this test have a theoretical range from 500 to 550. In total, 56 percent of the students is female, and 98 percent is born in the Netherlands. On average, they were about 13 years old on October 1st 2014, which can be explained by the fact that there are more 7th grade students, who are about 12 years old, than

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[2] Note that we are not allowed to present minimum and maximum values of each variable, because of the policy on non-disclosure of individual data by Statistics Netherlands.

9th grade students, who are about 14 years old. Almost 85 percent of students have a stable situation at home, with both parents still living at home (opposed to parents having divorced or one parent being deceased), and both schools have about the same number of students participating in the study, shown by the average of 1.5, for schools number 1 and number 2. The Socio-Economic Status (SES)-variable on the neighborhood of the Netherlands Institute for Social Research (SCP) has an average of -0.06, based on 65 different neighborhoods in our sample. Note that this variable was originally constructed to have a mean of 0 and a standard deviation of 1.

Table B1 furthermore shows that 88 percent of fathers has a job, opposed to 83 percent of mothers, where father's income is much higher than mother's income, with a much larger standard deviation. Note that we have some missings on income, while we do not have missings on the SES variable of the individual child, which is due to the fact that some children live with only one of their officially registered parents (who is then used to calculate the SES indicator). Since we can still identify both parents in the data, it is possible that we have missing income data on the other parent. Table B1 shows that mothers are on average younger than fathers, and that mothers on average work less hours than fathers (Full Time Equivalent; FTE). Most mothers have an upper secondary or vocational educational level. Note that fathers' educational level (not reported) has a similar distribution and all the analyses form this paper yield similar results if we include father's education instead of mother's educational level. We have decided to work with mother's educational level because on average mothers spend more time with their children at home (see variables 'has a job' and 'FTE') and are therefore more likely to be more involved in the school work of their children.

Lastly, Table B1 shows the Socio-Economic Status variable of the child, as well as the distribution of children over the three tertiles of SES. We have created three tertiles to perform interaction analysis between the treatment and SES groups. The lowest SES group (tertile 1)

has a mean SES score of 16777, the middle SES group (tertile 2) has a mean of 32879 and the highest SES group (tertile 3) has a mean of 61793.

In the remainder of this section, descriptive statistics are presented both for the full sample of 2086 students as well as for the three SES-groups separately.

Table B1 – Student, parent and family characteristics

	Obs	Average	St. Dev
Primary school ability test total score	2086	536.39	8.94
Female	2086	0.56	0.50
Birth country (0=NL, 1=other)	2086	0.98	0.15
Age (in full years)	2086	12.92	0.96
Situation at home (0=both parents at home, 1=parents divorced or one parent deceased)	2086	0.84	0.37
school	2086	1.50	0.50
Socio Econ Status at neighborhood level	2081	-0.06	0.87
Grade 7	2086	0.35	0.48
Grade 8	2086	0.35	0.48
Grade 9	2086	0.29	0.45
Father has a job	2086	0.88	0.32
Mother has a job	2086	0.83	0.37
Household income	2086	210091.44	821893.54
Income father	2015	52966.40	41815.64
Income mother	2070	22560.47	24870.57
Number of people in the household	2086	4.21	1.00
Number of children in the household	2086	2.28	0.79
Number of parents born abroad	2086	0.22	0.55
Generation of immigrant child	2086	0.27	0.67
Birth year mother	2086	1969.38	4.06
Birth year father	2062	1966.81	4.67
Full Time Equivalent mother (0 if no job)	2086	0.39	0.33
Full Time Equivalent father (0 if no job)	2086	0.63	0.46
Educational level mother: primary or lower secondary education	2086	0.10	0.30
Educational level mother: upper secondary or vocational education	2086	0.25	0.43
Educational level mother: higher education	2086	0.18	0.38
Educational level mother: missing	2086	0.47	0.50
Socio Econ Status child	2086	37696.91	30481.69
Tertile SES 1	2086	0.32	0.47
Tertile SES 2	2086	0.33	0.47
Tertile SES 3 (highest)	2086	0.35	0.48

Descriptive statistics of Parental use of school administrative system

For almost all students, only one parent has a login name to enter the system. A few students, most likely with divorced parents, have two parents to login. In almost all cases there is one parent that logs in a lot, and the other parent only logs in very occasionally. The average of having one or two parents logging in is 1.02. Therefore, we only use the number of logins between September and February for the first parent. Table B2 shows that on average, parents log in 33 times. Note that this also includes parents that have never logged in during the mentioned time period. This number is the highest for 7th grade students, followed by 8th grade students and lastly 9th grade students, and these differences are significant. Note that parents from the lowest SES group log in less, and parents from the highest SES group log in most, but these differences are not significantly different. The second half of Table B2 shows that roughly two out of three parents logged in at least once. Among the latter parents the average number of logins is 48, which is on average more than 2 times per week. This is again done the most by parents of 7th grade students. However, the separate statistics by SES group show that *if* low SES parents use the online student administrative system, they use it on average the most, of all three SES groups. Furthermore, the separate statistics show that in the low SES group parents in 7th grade use the system the most, whereas in the high SES group parents in grade 9 use the system more often.

Table B2 – Parental use of online student registration system (complete experimental period)

	Obs	Average	St. Dev
Number of times parents checked online student registration system	2,086	32.82	73.41
Number of times parents checked online student registration system (grade 7)	740	44.49	80.16
Number of times parents checked online student registration system (grade 8)	736	29.86	66.57
Number of times parents checked online student registration system (grade 9)	610	22.24	70.81
SES 1	Obs	Average	St. Dev
Number of times parents checked online student registration system	676	28.78	71.99
Number of times parents checked online student registration system (grade 7)	243	42.44	85.35
Number of times parents checked online student registration system (grade 8)	253	48.00	78.88
Number of times parents checked online student registration system (grade 9)	244	42.89	76.24
SES 2	Obs	Average	St. Dev
Number of times parents checked online student registration system	686	33.22	67.80
Number of times parents checked online student registration system (grade 7)	234	22.94	55.64
Number of times parents checked online student registration system (grade 8)	241	32.76	72.85
Number of times parents checked online student registration system (grade 9)	261	33.38	69.22
SES 3	Obs	Average	St. Dev
Number of times parents checked online student registration system	724	36.21	79.49
Number of times parents checked online student registration system (grade 7)	199	18.95	68.95
Number of times parents checked online student registration system (grade 8)	192	14.34	30.99
Number of times parents checked online student registration system (grade 9)	219	32.15	93.20

WHEN USED AT ALL

	Obs	Average	St. Dev
Number of times parents checked online student registration system	1,402	48.83	85.07
Number of times parents checked online student registration system (grade 7)	485	67.88	90.66
Number of times parents checked online student registration system (grade 8)	510	43.09	76.34
Number of times parents checked online student registration system (grade 9)	407	33.33	84.57
SES 1	Obs	Average	St. Dev
Number of times parents checked online student registration system	384	50.66	89.57
Number of times parents checked online student registration system (grade 7)	137	75.28	102.33
Number of times parents checked online student registration system (grade 8)	173	70.20	86.88
Number of times parents checked online student registration system (grade 9)	175	59.80	84.27
SES 2	Obs	Average	St. Dev
Number of times parents checked online student registration system	495	46.04	76.04
Number of times parents checked online student registration system (grade 7)	131	40.98	69.31
Number of times parents checked online student registration system (grade 8)	191	41.34	79.67
Number of times parents checked online student registration system (grade 9)	188	46.34	77.84
SES 3	Obs	Average	St. Dev
Number of times parents checked online student registration system	523	50.13	89.74
Number of times parents checked online student registration system (grade 7)	116	32.52	87.98
Number of times parents checked online student registration system (grade 8)	131	21.02	35.64
Number of times parents checked online student registration system (grade 9)	160	44.00	106.70

The number of logins provides interesting reference information for the parental involvement experiment, because it serves as a signal of involvement and more particularly of the willingness of parents to use an electronic instrument to get involved in the education process of their child. All parents were granted access to the learning management system. Two out of three effectively used it and, moreover, tended to do so intensely. Apparently, parents have a high willingness to be in touch with the school work of their children and, especially in 7th grade, check upon progress various times per week.

Descriptive statistics of Mathematics and Language tests

The math test consists of relatively simple multiplication or addition questions, but also contains special understanding questions, where the student sees an unfolded shape and is asked to select the figure that could create the unfolded shape. Or the student is asked to calculate the volume of a sphere, or is asked to quickly make calculations by heart. The math test contains multiple choice questions and students were allowed to use scrap paper for their calculations, but no digital calculator. The math tests lasted for about 20 minutes. The language tests for example consists of spelling questions, vocabulary questions, text comprehension, grammar questions, and having to listen to some information and answer a question about that. The language test lasted for about 90 minutes.

Table B3 describes the average scores for the full experiment population, as well as per grade and SES group, highlighting the learning progress students make over time (all posttest averages are markedly higher than pretest averages for math, with the exception of language

for grade 7 students[3]), but also indicating the large variance of all test results. Note that some students were not present during the pretest or the posttest of mathematics and/or language, due to illness[4].

Table B3 – Math and language tests

	Obs	Average	St. Dev
Score math pretest	2,033	86.96	43.24
Score math posttest	1,953	110.37	40.25
Score math pretest (grade 7)	722	47.98	12.02
Score math posttest (grade 7)	689	60.73	12.70
Score math pretest (grade 8)	717	100.02	39.56
Score math posttest (grade 8)	689	134.91	20.16
Score math pretest (grade 9)	717	100.02	39.56
Score math posttest (grade 9)	575	140.45	15.56
SES 1	Obs	Average	St. Dev
Score math pretest	645	86.18	42.59
Score math posttest	607	106.42	39.94
Score math pretest (grade 7)	233	47.06	12.85
Score math posttest (grade 7)	215	58.24	13.52
Score math pretest (grade 8)	223	98.38	38.38
Score math posttest (grade 8)	211	130.20	21.59
Score math pretest (grade 9)	189	120.04	32.33
Score math posttest (grade 9)	181	135.92	17.23
SES 2	Obs	Average	St. Dev
Score math pretest	674	87.62	43.59
Score math posttest	651	108.99	40.50
Score math pretest (grade 7)	247	47.46	11.52
Score math posttest (grade 7)	241	60.96	12.51
Score math pretest (grade 8)	238	103.74	39.00
Score math posttest (grade 8)	228	134.04	21.31
Score math pretest (grade 9)	189	119.81	34.96
Score math posttest (grade 9)	182	141.21	14.40
SES 3	Obs	Average	St. Dev
Score math pretest	714	87.04	43.53
Score math posttest	695	115.12	39.87
Score math pretest (grade 7)	242	49.41	11.61
Score math posttest (grade 7)	233	62.80	11.72
Score math pretest (grade 8)	256	97.99	40.98

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[3] This is due to a test element that was only included in the pretest, on which almost all students scored very high, that was not included in the posttest.

[4] Since the baseline outcome measure of our analysis is whether and how much the student practiced in the online tool, we decided not to limit our sample to the students for whom we have complete test information.

	Obs	Average	St. Dev
Score math posttest (grade 8)	250	139.67	16.55
Score math pretest (grade 9)	216	116.23	39.37
Score math posttest (grade 9)	212	143.67	14.09

Table B3 – Math and language tests – continued

	Obs	Average	St. Dev
Score language pretest	1,909	168.43	42.46
Score language posttest	1,853	157.22	39.98
Score language pretest (grade 7)	646	179.63	53.27
Score language posttest (grade 7)	680	132.30	27.14
Score language pretest (grade 8)	695	159.49	34.17
Score language posttest (grade 8)	625	162.08	36.37
Score language pretest (grade 9)	695	159.49	34.17
Score language posttest (grade 9)	548	182.60	39.31
SES 1	Obs	Average	St. Dev
Score language pretest	593	158.83	46.54
Score language posttest	580	148.52	39.63
Score language pretest (grade 7)	198	162.69	64.53
Score language posttest (grade 7)	213	125.22	32.25
Score language pretest (grade 8)	214	156.53	36.62
Score language posttest (grade 8)	196	153.86	32.82
Score language pretest (grade 9)	181	157.31	30.90
Score language posttest (grade 9)	171	171.41	39.69
SES 2	Obs	Average	St. Dev
Score language pretest	639	166.66	42.57
Score language posttest	607	155.18	38.98
Score language pretest (grade 7)	228	180.63	52.67
Score language posttest (grade 7)	234	132.35	26.98
Score language pretest (grade 8)	233	154.42	32.21
Score language posttest (grade 8)	202	158.13	33.95
Score language pretest (grade 9)	178	164.80	34.09
Score language posttest (grade 9)	171	182.94	39.41
SES 3	Obs	Average	St. Dev
Score language pretest	hhhh	178.50	36.00
Score language posttest	666	166.67	39.26
Score language pretest (grade 7)	220	193.84	35.67
Score language posttest (grade 7)	233	138.74	19.66
Score language pretest (grade 8)	248	166.81	32.62
Score language posttest (grade 8)	227	172.70	38.87
Score language pretest (grade 9)	209	176.21	34.52
Score language posttest (grade 9)	206	191.62	36.65

Questionnaires

a. Student questionnaire

During our study, students were asked to fill out a questionnaire, with questions on the courses mathematics and Dutch, on the program Mousework, on the time spent on homework, on their opinion on parental involvement and on their work attitude[5]. In the current paper we draw on the questions on homework time and on parental involvement. The questions on homework time were: "How much time do you on average spend on homework for Dutch/Mathematics?" (1 question per subject) The answer options were: 0-15 minutes, 15-30 minutes, 30-45 minutes, 45-60 minutes or more than 60 minutes. The questions on parental involvement were: "I would like to get more help from my parents with my homework", and "I would like my parents to interfere less regarding me and my school work". The answer options were: No absolutely not, mostly not, neutral, sometimes, yes absolutely (5-point Likert scale).

Filling out the questionnaire took 10 to 15 minutes. The questionnaire was distributed on paper to the mentor (coach) of each class, who was asked to have the class fill it out. Unfortunately, not all mentors have handed out the questionnaire, and not all students were present during that time. Therefore, the response rate of the questionnaire is only 66 percent. This number is a little higher for grade 8, and a little below average for grade 9 (see Table B4). The presented separate descriptives per SES group show quite some differences, both between and within the SES groups, which are significantly different both across grade levels and between SES groups.

Additional analyzes (that can be found in Table A2 of Online Appendix 1) show that students that did fill out the questionnaire are on average a bit different from students who did not. Note

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[5] The full questionnaire (translated into English) is available upon request from the corresponding author.

that students were not necessarily the ones to decide whether to fill it out, as it was the teacher who decided whether to hand it out or not. However, students are clustered in classes, and this clustering is not random. In comparing the two groups, we see that students that did fill out more often have a higher primary school ability test score, a stable home situation (which might result in students not being present in class when the questionnaire was handed out), a higher SES (and underlying variables), and that more students from school 1 filled out the questionnaire.

Table B4 – Student Questionnaire

	Obs	Average	St. Dev
Filled out student questionnaire	2,086	0.66	0.47
Filled out student questionnaire (grade 7)	740	0.66	0.48
Filled out student questionnaire (grade 8)	736	0.69	0.46
Filled out student questionnaire (grade 9)	610	0.63	0.48
SES 1	Obs	Average	St. Dev
Filled out student questionnaire	676	0.58	0.49
Filled out student questionnaire (grade 7)	243	0.54	0.50
Filled out student questionnaire (grade 8)	253	0.70	0.46
Filled out student questionnaire (grade 9)	244	0.72	0.45
SES 2	Obs	Average	St. Dev
Filled out student questionnaire	686	0.69	0.46
Filled out student questionnaire (grade 7)	234	0.65	0.48
Filled out student questionnaire (grade 8)	241	0.69	0.46
Filled out student questionnaire (grade 9)	261	0.74	0.44
SES 3	Obs	Average	St. Dev
Filled out student questionnaire	724	0.70	0.46
Filled out student questionnaire (grade 7)	199	0.55	0.50
Filled out student questionnaire (grade 8)	192	0.68	0.47
Filled out student questionnaire (grade 9)	219	0.64	0.48

b. Parental questionnaire

During our study, parents were also asked to fill out a questionnaire. The parental questionnaire first of all contained background questions on the parents, for example on their age, ethnicity, labor market situation, and educational level. Furthermore, it contained a few questions on Mousework and the app, and eight statements on parental involvement in general (4-point Likert scale, ranging from 1=never to 4=a lot). In this study, we only use the questions on general parental involvement. The questions were the following: Do you make agreements with your child on homework, do you ask your child about its progress, do you help your child with homework, do you talk with your child about school, does your child need a lot of help, do you help your child when it has motivational problems and do you help your child with the computer?

Filling out the questionnaire would take about 10-15 minutes. The questionnaire was first sent via e-mail via the school administrative system of the schools. As that only generated a low response, the questionnaire was also distributed on paper to the mentor (coach) of each class, who was asked to hand it out to students, who were asked to have their parents fill it out and bring the questionnaire back to school. With the two efforts combined (both digital and on paper), the total response rate was about 33 percent (see Table B5). However, for 7th grade students more than 40 percent of the parents filled out the questionnaire, whereas for 9th grade students this is only 24 percent. The presented separate descriptives per SES group show quite some differences, both between and within the SES groups, which are significantly different both between and within grade level, SES groups and the interaction of those two.

Students of parents who did fill out the questionnaire are very different from students of parents who did not fill it out. As additional analyses show (see Table A3 of Online Appendix 1),

children from parents who did fill out have a higher score on the primary school ability test, are a bit younger (most likely because 7th grade students are overly represented in the group that did fill out the parental questionnaire) and have more often a stable home situation and a higher SES (and underlying variables).

Table B5 – Parental Questionnaire

	Obs	Average	St. Dev
Filled out parental questionnaire	2,086	0.33	0.47
Filled out parental questionnaire (grade 7)	740	0.43	0.50
Filled out parental questionnaire (grade 8)	736	0.29	0.46
Filled out parental questionnaire (grade 9)	610	0.24	0.43
SES 1	Obs	Average	St. Dev
Filled out parental questionnaire	676	0.28	0.45
Filled out parental questionnaire (grade 7)	243	0.32	0.47
Filled out parental questionnaire (grade 8)	253	0.47	0.50
Filled out parental questionnaire (grade 9)	244	0.50	0.50
SES 2	Obs	Average	St. Dev
Filled out parental questionnaire	686	0.34	0.47
Filled out parental questionnaire (grade 7)	234	0.26	0.44
Filled out parental questionnaire (grade 8)	241	0.30	0.46
Filled out parental questionnaire (grade 9)	261	0.32	0.47
SES 3	Obs	Average	St. Dev
Filled out parental questionnaire	724	0.35	0.48
Filled out parental questionnaire (grade 7)	199	0.25	0.43
Filled out parental questionnaire (grade 8)	192	0.22	0.42
Filled out parental questionnaire (grade 9)	219	0.23	0.42

Online Appendix 3

Mechanisms – Differential results by grade level

In order to get an idea about the mechanisms behind the effects that we found above in Section 5, we ran correlations between the answers of students in the student questionnaire, about the (desired level of) parental involvement, and the answers of parents in the parental questionnaire, about their involvement. Table C1 shows these correlations (and their statistical significance). Note that we only include two questions from the student questionnaire, which are the same questions that were also included in the regression analysis that we used in the robustness check, namely whether the student would like more help from the parent with homework, and whether the student feels that the parent should interfere less. A third student indicator is the number of minutes the students has worked in the homework tool. Note that this indicator appears twice in the correlation table, both as the first variable in the vertical list and the third variable in the horizontal listing of variables, as the results show that this is also related to the two questions from the student questionnaire. As for the parental questionnaire, we included all questions on parental involvement that are present in the questionnaire. The results are presented for the total sample, but also for the three grades separately. This is done as we also found very different results for the different grades in the previous two sections, and different results on the correlations might help explain or confirm the earlier findings.

As for the first student question, Table C1 first of all shows that overall, students who would like more help from their parents, also have parents that ask significantly less about progress at school (indicating that they would like more formal involvement than they are receiving at the moment). The results are mostly driven by 8th grade students.

Overall parents of students that would like more help, do indicate that they talk to their child about school less often (or, vice versa parents that talk to their children about school more often have children that indicate that they want less help), but do more often help the child with the computer, both of which seem to be driven by 9th grade students. Lastly, the parents of students that indicate they would like more help, also indicate that they feel their child needs more help. For the individual grades, this is found for all three grade levels.

As for the second student question, students who feel their parents should interfere less, spend significantly less time in the homework tool, and have parents that indicate that they do not talk much with the child about school, or help their child with homework. That students practice less in the tool is mainly driven by 9th grade students. The finding that students who want their parents to interfere less have parents that also talk less with the child about school is driven by 8th grade students, whereas the finding that parents feel that the student needs (much) help, while the students feel that their parents should interfere less is found for 7thgrade students.

As for the number of minutes spent in the practice tool, this is positively related to the number of times the parents have used the app (found for all three grades), is positively related to the way parents feel about whether their child needs little help for 9th grades students (if parents feel less help is needed, students practice more) and is negatively related to whether the parent helps the child when the motivation is gone, implying that if the parents try to help the child without motivation, the child practices less in the homework tool. The latter two findings are only significant for 9th grade students.

Table C1 – Correlations parental involvement questions student and parental questionnaires (total N=571)

	Total			grade 7			grade 8			grade 9		
	I would like more homework help from parents	Parents should interfere less	Number of minutes in homework tool by child	I would like more homework help from parents	Parents should interfere less	Number of minutes in homework tool by child	I would like more homework help from parents	Parents should interfere less	Number of minutes in homework tool by child	I would like more homework help from parents	Parents should interfere less	Number of minutes in homework tool by child
Number of minutes in homework tool	0.05	-0.06	1	0.10	0.02	1	-0.04	-0.04	1	0.01	-0.15	1
	(0.09)	(0.03)		(0.03)	(0.70)		(0.42)	(0.32)		(0.90)	(0.00)	
Number of times app checked	0.00	0.03	0.19	-0.06	0.02	0.20	0.05	0.02	0.29	0.00	0.04	0.12
	(0.94)	(0.33)	(0.00)	(0.20)	(0.60)	(0.00)	(0.29)	(0.62)	(0.00)	(0.93)	(0.47)	(0.00)
Do you have agreements on homework with child	-0.07	0.02	-0.01	-0.13	-0.06	-0.03	-0.10	0.13	0.08	0.14	-0.12	-0.01
	(0.12)	(0.70)	(0.82)	(0.05)	(0.39)	(0.55)	(0.19)	(0.09)	(0.27)	(0.16)	(0.23)	(0.91)
Do you ask child about progress	-0.13	-0.04	0.00	-0.09	-0.14	0.04	-0.15	-0.01	0.09	-0.12	0.01	-0.08
	(0.00)	(0.35)	(0.90)	(0.17)	(0.04)	(0.52)	(0.05)	(0.89)	(0.21)	(0.23)	(0.92)	(0.32)
Do you talk to child about school	0.02	-0.13	0.05	-0.05	-0.08	0.08	0.07	-0.26	0.09	0.07	-0.01	-0.09
	(0.62)	(0.00)	(0.21)	(0.50)	(0.21)	(0.18)	(0.39)	(0.00)	(0.21)	(0.45)	(0.96)	(0.29)
Does child need little help	-0.12	-0.13	0.06	-0.12	-0.18	0.04	-0.05	-0.08	0.06	-0.18	-0.14	0.21
	(0.01)	(0.00)	(0.11)	(0.09)	(0.01)	(0.53)	(0.51)	(0.30)	(0.41)	(0.06)	(0.15)	(0.01)
Do you help child with homework	0.19	0.02	-0.04	0.18	0.06	0.01	0.17	0.05	-0.08	0.17	-0.08	-0.20
	(0.00)	(0.70)	(0.31)	(0.01)	(0.41)	(0.82)	(0.03)	(0.56)	(0.25)	(0.08)	(0.40)	(0.02)
Do you help child if motivation is gone	0.05	-0.01	-0.07	0.01	-0.04	-0.05	0.11	0.01	-0.07	-0.06	0.09	-0.20
	(0.32)	(0.86)	(0.08)	(0.94)	(0.53)	(0.37)	(0.15)	(0.95)	(0.32)	(0.57)	(0.38)	(0.02)
Do you help child with computer	0.12	-0.01	-0.01	0.07	0.00	-0.03	0.08	-0.02	0.04	0.24	0.01	-0.12
	(0.01)	(0.77)	(0.84)	(0.28)	(0.98)	(0.57)	(0.32)	(0.82)	(0.53)	(0.01)	(0.96)	(0.17)

P-values in parentheses

Mechanisms – Differential results by SES

Table C2 – Potential mechanisms differential results by SES – minutes practices per week by grade level and SES-group

	SES1			SES2			SES3		
	Obs	Average	St. Dev	Obs	Average	St. Dev	Obs	Average	St. Dev
Minutes practiced per week - grade 7 (NO app)	224	11.87	13.69	217	17.30	17.20	207	15.87	14.96
Minutes practiced per week - grade 7 (app used)	19	28.25	20.90	36	27.30	20.04	37	23.62	15.77
Minutes practiced per week - grade 8 (NO app)	216	13.32	14.23	213	10.32	11.68	232	11.60	12.45
Minutes practiced per week - grade 8 (app used)	18	31.78	25.69	28	18.70	17.91	29	20.01	18.10
Minutes practiced per week - grade 9 (NO app)	187	12.65	16.26	169	9.88	12.42	193	11.74	13.99
Minutes practiced per week - grade 9 (app used)	12	10.02	10.87	29	20.01	18.10	26	20.05	14.96

Table C3 – Potential mechanisms differential results by SES – student and parental questionnaire answers by SES-group

	SES1			SES2			SES3			P-value of difference?
	Obs	Average	St. Dev	Obs	Average	St. Dev	Obs	Average	St. Dev	
Student Questionnaire										
Do you help child with homework	187	2.11	0.57	234	2.12	0.55	254	2.14	0.59	0.89
Do you help child if motivation is gone	184	2.65	0.77	226	2.55	0.67	244	2.65	0.77	0.26
Do you help child with computer	188	1.77	0.63	232	1.88	0.55	253	1.76	0.57	0.04
Do you have agreements on homework with child	188	1.61	1.25	234	1.54	1.12	254	1.59	1.15	0.81
Do you ask child about progress	187	2.47	1.87	233	2.33	1.73	252	2.48	1.82	0.59
Do you talk to child about school	188	2.96	0.67	232	2.98	0.61	254	3.06	0.61	0.22
Does child need little help	184	2.65	0.75	226	2.75	0.78	248	2.89	0.78	0.00
Do you or your partner have asmartphone or tablet?	187	0.90	0.30	232	0.97	0.18	255	0.96	0.18	0.01
Did you download and install the app?	184	0.33	0.47	229	0.37	0.48	255	0.36	0.48	0.67
Did you use the app	152	0.17	0.38	180	0.22	0.42	199	0.20	0.40	0.50
How often did you use the app?	96	4.35	1.23	116	4.07	1.42	129	4.12	1.36	0.26
Are you satisfied with the app?	155	0.18	0.39	177	0.17	0.38	192	0.19	0.39	0.90
Number of times parents checked the app	676	1.26	7.66	686	2.81	16.18	724	2.09	9.47	0.05
Parental Questionnaire										
I have computer at home to practice my homework	394	3.63	0.88	472	3.72	0.76	508	3.69	0.80	0.28
Practicing exercises of Mousework online works well	394	2.78	1.01	473	2.73	1.01	504	2.79	1.01	0.64
I often cannot practice because there a no new exercises available or me	394	1.93	1.04	471	1.88	1.03	502	1.75	0.94	0.02
I like the fact that Mousework gives explanation right away when i answer a question wrong	390	2.57	1.11	472	2.64	1.04	498	2.56	1.05	0.45
If I want to use Mousework at home, there are often problems with the website	391	2.12	1.09	472	2.08	1.04	502	2.07	1.05	0.77
If I use Mousework online, I simultaneously use Facebook, Twitter or other social media website	393	2.39	1.25	473	2.37	1.22	502	2.38	1.16	0.98
I'd like more help from my parents with my homework	390	2.01	1.09	473	2.01	1.08	505	1.87	1.01	0.06
I'd like less interference by my parents in school related issues	391	2.44	1.24	472	2.69	1.32	505	2.54	1.24	0.01
Minutes per week practiced	676	13.51	15.68	686	13.99	15.42	724	14.11	14.48	0.73

Table C4 – Potential mechanisms differential results by SES – correlations between whether parent downloaded the app and answers to parental questionnaire, by SES-group

Correlations	Total	SES1	SES2	SES3
	Downloaded the app			
Filled out parental questionnaire	0.11	0.11	0.10	0.11
	(0.00)	(0.00)	(0.00)	(0.00)
Do you have agreements on homework with child	0.02	-0.03	-0.01	0.09
	(0.57)	(0.61)	(0.84)	(0.11)
Do you ask child about progress	-0.03	0.00	-0.06	-0.03
	(0.34)	(0.96)	(0.31)	(0.55)
Does child need little help	0.01	0.11	-0.03	-0.01
	(0.66)	(0.13)	(0.60)	(0.92)
Do you talk to child about school	0.01	0.14	-0.07	-0.02
	(0.89)	(0.05)	(0.23)	(0.64)
Do you help child with homework	0.02	0.10	-0.01	-0.02
	(0.65)	(0.15)	(0.83)	(0.73)
Do you help child if motivation is gone	0.05	0.10	0.03	0.03
	(0.17)	(0.16)	(0.58)	(0.58)
Do you help child with computer	0.03	0.12	-0.05	0.02
	(0.43)	(0.09)	(0.48)	(0.73)
Number of times logged in to school admin system	0.08	0.16	0.14	-0.30
	(0.00)	(0.00)	(0.00)	(0.36)

P-values in parentheses

Correlations	Total	SES1	SES2	SES3
Correlation school admin system used and app used	0.09	0.11	0.05	0.07
	(0.00)	(0.00)	(0.12)	(0.06)
Correlation number of times logged in to school admin system and number of times app used	0.05	0.05	0.08	0.02
	(0.01)	(0.18)	(0.03)	(0.48)

P-values in parentheses

Table C5 – Potential mechanisms differential results by SES – Cross tabs on app statistics by SES-group

Cross tabs	SES1	SES2	SES3	P-value of chi-squared
	676	686	724	
	32.41%	32.89%	34.71%	
Control group app	327	286	321	
	35.01%	30.62%	34.37%	
Treatment group app	349	400	403	
	30.30%	34.72%	34.98%	0.04
Did not fill out student questionnaire	282	210	216	
	39.83%	29.66%	30.51%	
Filled out student questionnaire	394	476	508	
	28.59%	34.54%	36.87%	0.00
Did not fill our parental questionnaire	487	452	469	
	24.59%	32.10%	33.31%	
Filled out parental questionnaire	189	234	255	
	27.88%	34.51%	37.61%	0.01
Did not use parental app	627	597	631	
	33.80%	32.18%	34.02%	
Used parental app	49	87	92	
	21.21%	38.16%	40.35%	0.00
Did not download app	565	539	574	
	33.67%	32.12%	34.21%	
Downloaded app	111	147	150	
	27.21%	36.03%	36.76%	0.04
Did not use parental app (if downloaded)	62	60	58	
	35.03%	33.33%	32.22%	
Used parental app (if downloaded)	49	87	93	
	21.21%	38.16%	40.35%	0.008

	SES1	SES2	SES3	p-value of ANOVA
Number of times parents logged in to school admin system (mean)	28.78	33.22	36.21	0.16
Number of minutes per week the student practiced (mean)	13.50	13.99	14.11	0.73

Table C6 – Potential mechanisms differential results by SES – Cross tabs on app statistics by SES-group

Correlations	SES1	SES2	SES3
	Parents used app		
Younger child vs. Oldest child	-0.07	-0.12	-0.10
	(0.06)	(0.00)	(0.00)

	SES1	SES2	SES3	p-value of ANOVA
Younger child: I'd like less interference by my parents in school related issues	2.46	2.62	2.50	0.36
Oldest child: I'd like less interference by my parents in school related issues	2.43	2.74	2.60	0.03
Birth Year Mother	1970	1969	1969	0
Birth Year Father	1967	1966	1966	0.01

Correlations		
Within tertile SES 1	App used	App downloaded
Socio Economic Status	0.06	0.08
	(0.08)	(0.03)
Educational level mother	0.03	-0.02
	(0.32)	(0.61)

Table C7 – Regression separately for younger and oldest children

	Younger child				Oldest child			
	ITT ; dependent: Number of times the child used the homework tool							
	Total	Grade 7	Grade 8	Grade 9	Total	Grade 7	Grade 8	Grade 9
Dummy app used SES 1	1.659	1.497	7.310***	-4.791*	1.581	3.104	6.733**	-7.338**
	(1.353)	(2.246)	(2.210)	(2.611)	(1.793)	(3.196)	(2.778)	(3.439)
Dummy app used SES 2	2.383*	4.636*	-0.568	3.714	1.112	1.579	0.026	0.917
	(1.443)	(2.554)	(2.303)	(2.612)	(1.792)	(2.999)	(2.775)	(3.609)
Dummy app used SES 3	-0.507	3.166	1.398	-4.193*	-0.708	1.416	1.059	-5.826*
	(1.385)	(2.606)	(2.203)	(2.466)	(1.705)	(2.985)	(2.632)	(3.282)
N	1272	419	466	387	1049	419	346	284
R-squared	0.083	0.173	0.135	0.065	0.079	0.123	0.131	0.077
F-statistic	4.529	3.600	3.002	1.099	3.493	2.416	2.111	0.938

Controls = primary school ability score, gender, age, country of birth, situation at home, ses (neighborhood), mother part time, mother has a job, number of people in the household, educational level mother, individual SES, number of parents born abroad, child born abroad, school, type of education, grade level

standard errors in parentheses

* $p<0.1$; ** $p<0.05$; *** $p<0.01$