Evaluating the design, implementation and impact of SSDP trainings for teacher of secondary math and science in Nepal

Julie Schaffner, Paul Glewwe and Uttam Sharma

Online Appendix A. Additional tables

The tables in this appendix report additional details for some regressions presented in the main report, as well as the results of additional regressions that allow for differentiated results between two study arms that are combined in the main report: teacher training with video assignment (TTVA) and teacher training without video assignment (TT). For more details on the Video Assignment, see Online Appendix B.

Table A1 extends the analysis of baseline balance (Tables 3 and 4 in the main report) to allow comparison between TT and TTVA sub-arms, while Table A2 checks, among teachers in treated schools at endline, for balance between teachers who participated in the training and teachers who did not participate (where imbalance may arise because participation is a choice rather than the result of random assignment). Table A3 presents descriptive statistics for endline test scores for all study arms. Tables A4, A5, A6 and A7 present estimates of the discrimination and difficulty parameters for the 2-parameter IRT models for math and science, with separate estimates for grades 9 and 10 for both subjects. Tables A8 through A11 present more details regarding the regressions reported in Table 5 and 6 in the main report, as well as results for regressions that allow for differentiated impacts between the TT and TTVA study arms, while Table 12 reports results for regressions that replace the "Treat" dummy variable with the number of days that students were "exposed" to newly trained teachers. Tables A13 through A15 present results for regressions examining additional potential dimensions of heterogeneity not reported in the main report. Table A16 re-estimates some models with heterogeneous effects to provide explicit estimates with standard errors of treatment impacts differentiated by gender, parental education and teacher contract status. Tables A17 through A39 present more details regarding the intermediate outcome regressions reported in Tables 9 through 13 of the main report, as well as results for regressions that allow for differentiated impacts between the TT and TTVA study arms.

Table A1. Baseline descriptive statistics and balance tests differentiating TT and TTVA study arms

Variable	Number of observa-tions	Mean (standard error of mean)	Standard deviation	Mean for TT Sample (s.d.)	Mean for TTVA Sample (s.d.)	Mean for Control Sample (s.d.)	p-value for test of $\beta_{TT} = \beta_{TTVA} = 0$	p-value for test of $\beta_{TT} = \beta_{TTVA}$	p-value for test of $\beta_{TT/TTVA} = 0$
School-level characteristics									
Total no. of students in school	203	427.7 (15.4)	249.8	402.5 (232.8)	401.6 (196.3)	453.1 (277.7)	0.112	0.873	0.036**
Hours walking to nearest all-weather road	203	3.16 (0.35)	4.54	3.27 (4.50)	2.45 (2.54)	3.47 (5.26)	0.388	0.328	0.395
Students per section in Grade 9	203	49.53 (1.61)	26.74	46.24 (23.84)	49.54 (26.76)	51.11 (27.82)	0.395	0.454	0.242
Students per section in Grade 10	203	42.92 (1.38)	22.05	38.89 (20.07)	44.23 (20.98)	44.20 (23.19)	0.221	0.165	0.279
Days school was open last year (Grade 9)	203	195.59 (1.21)	16.18	198.84 (17.31)	191.08 (18.48)	196.31 (13.68)	0.024**	0.011**	0.544
School has electricity (several hours most days)	203	0.77 (0.03)	0.42	0.81 (0.40)	0.81 (0.39)	0.73 (0.44)	0.230	0.883	0.085*
Whether head teacher (HT) has at least Master's degree	203	0.57 (0.04)	0.50	0.69 (0.47)	0.57 (0.49)	0.52 (0.50)	0.107	0.200	0.078*
Hours per week HT teaches	203	16.38 (0.49)	6.82	17.27 (6.09)	16.65 (6.82)	15.81 (7.08)	0.384	0.698	0.193
Estimated management quality index	201	-0.02 (0.07)	0.90	-0.09 (1.09)	0.17 (0.67)	-0.07 (0.89)	0.178	0.145	0.454
Teacher-level characteristics									
Is female	395	0.07 (0.01)	0.25	0.06 (0.24)	0.12 (0.32)	0.04 (0.20)	0.018**	0.065*	0.030**
Has at least Bachelor's degree in math/science	361	0.81 (0.02)	0.40	0.77 (0.43)	0.80 (0.39)	0.82 (0.38)	0.569	0.954	0.291
Had SSRP training	395	0.31 (0.03)	0.46	0.25 (0.44)	0.35 (0.46)	0.32 (0.47)	0.390	0.284	0.481

Variable	Number of observa-tions	Mean (standard error of mean)	Standard deviation	Mean for TT Sample (s.d.)	Mean for TTVA Sample (s.d.)	Mean for Control Sample (s.d.)	p-value for test of $\beta_{TT} = \beta_{TTVA} = 0$	p-value for test of $\beta_{TT} = \beta_{TTVA}$	p-value for test of $\beta_{TT/TTVA} = 0$
Years of experience	393	11.09 (0.44)	8.12	11.00 (8.22)	10.41 (7.42)	11.49 (8.42)	0.159	0.213	0.168
Hours spent preparing for class	393	0.81 (0.05)	0.96	0.68 (0.77)	0.89 (0.89)	0.82 (1.07)	0.265	0.155	0.505
Grades 8 and 9 student-level characteristics									
Is female	16435	0.55 (0.01)	0.50	0.54 (0.49)	0.55 (0.50)	0.55 (0.50)	0.794	0.506	0.875
Father can read and write	15594	0.83 (0.01)	0.38	0.82 (0.38)	0.84 (0.36)	0.82 (0.38)	0.482	0.321	0.470
Father has at least secondary education	15753	0.28 (0.01)	0.45	0.29 (0.45)	0.27 (0.44)	0.28 (0.45)	0.894	0.639	0.881
Mother can read and write	14830	0.59 (0.01)	0.49	0.58 (0.49)	0.61 (0.49)	0.59 (0.49)	0.831	0.544	0.964
Mother has at least secondary education	15831	0.11 (0.01)	0.32	0.10 (0.29)	0.12 (0.32)	0.12 (0.33)	0.229	0.119	0.384
Nepalese is main language spoken at home	16251	0.75 (0.02)	0.43	0.72 (0.45)	0.76 (0.43)	0.77 (0.43)	0.284	0.275	0.226
Family IRT asset index	16435	-0.04 (0.03)	0.77	-0.09 (0.74)	0.03 (0.79)	-0.04 (0.77)	0.541	0.267	0.950
Baseline test scores									
Grade 8 math percentage score	7651	18.12 (0.45)	10.57	18.20 (10.97)	18.06 (10.11)	18.11 (10.62)	0.756	0.914	0.460
Grade 8 math IRT latent variable	7651	0.01 (0.04)	0.86	-0.00 (0.90)	0.02 (0.83)	0.01 (0.87)	0.660	0.584	0.414
Grade 8 science percentage score	7651	28.17 (0.68)	12.4	28.02 (13.10)	29.06 (13.03)	27.76 (11.66)	0.668	0.399	0.609
Grade 8 science IRT latent variable	7651	0.05 (0.05)	0.91	0.04 (0.97)	0.11 (0.93)	0.03 (0.86)	0.659	0.466	0.477

Variable	Number of observa-tions	Mean (standard error of mean)	Standard deviation	Mean for TT Sample (s.d.)	Mean for TTVA Sample (s.d.)	Mean for Control Sample (s.d.)	p-value for test of $\beta_{TT} = \beta_{TTVA} = 0$	p-value for test of $\beta_{TT} = \beta_{TTVA}$	p-value for test of $\beta_{TT/TTVA} = 0$
Grade 9 math percentage score	8784	28.53 (0.83)	15.64	27.54 (14.55)	28.32 (15.40)	29.06 (16.18)	0.383	0.751	0.168
Grade 9 math IRT latent variable	8784	0.02 (0.05)	0.92	-0.02 (0.87)	-0.01 (0.89)	0.04 (0.95)	0.434	0.958	0.196
Grade 9 science percentage score	8784	28.07 (0.58)	11.11	27.06 (10.20)	28.11 (10.97)	28.48 (11.54)	0.322	0.288	0.314
Grade 9 science IRT latent variable	8784	0.02 (0.04)	0.84	-0.04 (0.79)	0.01 (0.83)	0.04 (0.88)	0.463	0.431	0.366

Notes: [a] For all p-values, * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level. [b]The p-values from tests of the hypothesis that the coefficients on the TT and TTVA dummy variables are zero, based on weighted least squares (WLS) regressions of each variable on TT, TTVA, and district and priority stratum fixed effects. Analogous regressions where used to test the hypothesis that the coefficients on TT and TTVA are equal. The last column shows the results from the last columns of Tables 3 and 4. [c]For variables that are binary (dummy variables), weighted probit regressions were used instead of WLS. The weights for all WLS and weighted probit regressions are school-level population weights, the construction of which is explained in Appendix D.

Table A2. Comparison of characteristics for teachers in treatment schools at endline who had and had not participated in training

Teacher Characteristic	Number of observations	Mean (standard error of mean)	Standard deviation	Mean for teachers who participated	Mean for teachers who did not participate	p-value for test of $\beta_1 = 0$[a,b,c]
All Teachers						
Years of experience	203	12.17 (0.61)	8.68	11.74 (0.82)	12.75 (1.20)	0.853
Permanent contract	203	0.318 (0.037)	0.467	0.296 (0.060)	0.348 (0.057)	0.755
Lives in the community	203	0.402 (0.065)	0.492	0.375 (0.064)	0.438 (0.089)	0.951
Has master's degree (any)	203	0.425 (0.043)	0.496	0.410 (0.055)	0.445 (0.046)	0.338
Has master's degree (math or science)	183	0.277 (0.041)	0.449	0.285 (0.049)	0.267 (0.050)	0.100*
Teaches math	203	0.577 (0.018)	0.495	0.624 (0.038)	0.514 (0.042)	0.099*
Teaches science	203	0.541 (0.019)	0.500	0.479 (0.038)	0.624 (0.039)	0.057*
Has other training	183	0.595 (0.036)	0.492	0.734 (0.051)	0.397 (0.054)	0.000***
Math Teachers Only						
Years of experience	115	12.81 (0.76)	7.87	12.01 (0.87)	14.11 (1.35)	0.660
Permanent contract	115	0.385 (0.051)	0.483	0.345 (0.065)	0.450 (0.071)	0.795
Lives in the community	115	0.449 (0.075)	0.494	0.433 (0.070)	0.474 (0.120)	0.549
Has master's degree (any)	115	0.492 (0.069)	0.497	0.471 (0.064)	0.527 (0.121)	0.608
Has master's degree (math or science)	101	0.343 (0.083)	0.474	0.365 (0.074)	0.304 (0.132)	0.147
Has other training	101	0.621 (0.048)	0.485	0.743 (0.061)	0.410 (0.075)	0.001***

Science Teachers Only						
Years of experience	110	11.39 (0.98)	8.95	11.06 (1.43)	11.73 (2.45)	0.714
Permanent contract	110	0.233 (0.039)	0.424	0.207 (0.073)	0.259 (0.070)	0.684
Lives in the community	110	0.350 (0.079)	0.478	0.288 (0.082)	0.413 (0.106)	0.915
Has master's degree (any)	110	0.391 (0.041)	0.489	0.343 (0.074)	0.441 (0.057)	0.613
Has master's degree (math or science)	102	0.246 (0.039)	0.430	0.173 (0.057)	0.328 (0.059)	0.715
Has other training	102	0.591 (0.053)	0.491	0.771 (0.064)	0.391 (0.090)	0.001***

Note: The sum of the number of observations for math and science teachers exceeds the number of observations for total teachers because there are 22 teacher who teach both math and science. "Other training" includes SSRP training in secondary math or science, other government in-service training in secondary math or science, non-government in-service training in secondary math or science, and "any other government or non-government in-service teacher training". See notes to Table 3 in the report for information about the underlying regressions and the statistical tests.

Table A3. Weighted descriptive statistics by study arm for normalized endline student test scores, full sample

	Grade 9 Math		Grade 9 Science		Grade 10 Math		Grade 10 Science	
	All questions	SSDP questions	All questions	SSDP questions	All questions	SSDP questions	All questions	SSDP questions
TT schools								
Mean	-0.115	-0.086	-0.059	-0.062	-0.031	-0.041	0.014	0.048
Standard deviation	0.960	0.966	0.964	0.954	0.935	0.971	0.925	0.935
Sample size	1,662	1,662	1,661	1,661	1,352	1,352	1,351	1,351
TTVA schools								
Mean	-0.003	0.071	-0.044	-0.061	-0.039	-0.047	-0.017	-0.029
Standard deviation	0.901	0.934	0.862	0.875	1.056	1.031	1.014	1.020
Sample size	1,691	1,691	1,690	1,690	1,338	1,338	1,341	1,341
TT and TTVA schools								
Mean	-0.057	-0.004	-0.051	-0.061	-0.035	-0.044	-0.002	0.009
Standard deviation	0.931	0.953	0.912	0.914	0.998	1.001	0.971	0.979
Sample size	3,353	3,353	3,351	3,351	2,690	2,690	2,692	2,692
Control schools								
Mean	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Standard deviation	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Sample size	3,447	3,447	3,446	3,446	3,142	3,142	3,137	3,137
Intra-school correlation	0.095	0.071	0.065	0.054	0.090	0.073	0.080	0.063

Note: All test scores are normalized by subtracting the control group mean and then dividing by the control group standard deviation. All statistics are weighted by sampling weights, the construction of which is explained in Appendix D.

Table A4. Two-parameter IRT estimates: Grade 9 mathematics

Question Number	Question	Discrimination Parameter		Difficulty Parameter	
		Coefficient	Std. Error	Coefficient	Std. Error
2	In which number does the 8 have the value of 800?	0.587***	0.068	0.425***	0.144
3	What is 15 x 9?	1.838***	0.153	-1.529***	0.097
4	What is 27 ÷ 3?	2.134***	0.172	-1.464***	0.086
5	Five children drew a circle to play a game…	0.763***	0.068	0.065	0.078
6	One of these angles is a right angle. Which one?	0.555***	0.068	0.305**	0.134
7	How many right angles are there in 270 degrees?	1.064***	0.071	-0.155**	0.067
8	Here is a cone. Part of its surface is flat and part of it is curved.	0.529***	0.054	0.850***	0.143
9	The graph below shows the number of books borrowed …	0.343***	0.053	0.706***	0.202
10	If A = {a,e,i, o, u} then what is the value of n(A)?	1.440***	0.073	-1.041***	0.055
12	What is the value of x in the given figure?	0.951***	0.088	-0.208**	0.084
13	What is the volume of a cube having side 2 cm?	1.220***	0.063	0.230***	0.066
15	What is the degree of x3y2+x4y+x2y3?	0.353***	0.048	1.165***	0.239
16	What is the measure of angle C in the triangle below?	1.456***	0.078	0.353***	0.074
17	It takes Diksha 4 minutes to wash a window	1.361***	0.061	-1.033***	0.055
18	Which of the numbers below is equal to 7/10 ?	1.705***	0.091	-0.652***	0.058
19	The figure below shows an equilateral triangle	0.204***	0.066	6.481***	2.188
20	Shaheen has 2 pencil boxes	1.084***	0.056	-0.818***	0.061
21	In which figure below is the dotted line a line of symmetry?	0.044	0.050	33.530	37.667
23	Karen paid x rupees for 3 cartons of juice. What is the price …	0.948***	0.072	0.650***	0.107
25	25 × 18 is more than 24 × 18. How much more?	1.486***	0.109	-0.175***	0.063
26	The figure below has three circles with …	1.335***	0.090	-0.676***	0.060
27	Gautam gave a loan of Rs 20,000 at 10% rate of interest …	-0.292***	0.076	-5.045***	1.223
28	One year a company reported selling 1426 tons …	0.468***	0.068	0.381**	0.155
29	Ekta and Beena's current ages are in the ratio 3:5. The sum …	0.257***	0.091	6.295***	2.308
30	Manoj wants to buy 7 boxes	-0.441***	0.081	-4.759***	0.811
31	What is the value of y?	0.948***	0.077	-0.429***	0.066
32	In the coordinate plane below, which points could have …	0.904***	0.069	0.578***	0.104
33	The sum 691 + 208 is closest to the sum …	0.852***	0.069	0.525***	0.096
34	3/5 + (3/10 × 4/5)	0.707***	0.079	1.555***	0.220
35	Which is the correct area of the given triangle ?	-0.103	0.333	-19.437	62.385
36	Which of these is the reason that PQR is a right angle ?	0.859***	0.067	-0.053	0.081

37	Which one is the length of the diagonal of a square where …	0.164**	0.068	4.864**	2.149
43	Which of these has the same value as 342?	1.350***	0.101	-1.591***	0.098
44	What is 48 × 5?	1.884***	0.154	-1.621***	0.095
45	What is 6 ÷ 3?	1.775***	0.124	-1.141***	0.083
46	All of the students in a class cut out paper shapes	0.782***	0.070	-1.024***	0.103
47	Which angle has the greatest degree measure?	1.164***	0.085	0.592***	0.093
48	Which of the following is not a parallelogram?	0.295***	0.068	3.775***	0.953
50	Figures that are the same size and shape are called …	1.163***	0.080	-0.799***	0.071
51	If a square has one side 6 cm, then what will be the area?	1.142***	0.076	-0.547***	0.069
52	In the figure, if the two rays are parallel what is the value of x?	0.866***	0.076	0.809***	0.129
53	There were m boys and n girls in a parade …	1.485***	0.095	-0.592***	0.061
54	9/8 × 2/3 =	0.580***	0.069	2.170***	0.298
55	The figure below shows a glass and a jar of equal height	0.863***	0.069	-0.151*	0.080
56	Nihal has a loan of 8,000 Nepalese Rupees (NPR) with Bank A	0.426***	0.054	1.599***	0.244
57	At a local market, you can buy tomatoes by the pound or by …	0.640***	0.063	-0.458***	0.092
58	There are 36 passengers on a bus	0.659***	0.070	0.680***	0.140
59	Which of the following expressions is equal to 2x-3y+7x+5y?	0.745***	0.067	0.958***	0.137
60	Which angle in the figure has a measure …	0.760***	0.065	0.378***	0.107
61	In the figure above, ABCD is a rectangle, and circles P & Q …	0.469	0.368	6.073	4.265
62	The product 22.5×10 lies between …	0.206	0.264	7.858	10.028
63	4/100 + 3/100	1.197***	0.084	0.187**	0.084
64	Two of the triangles below are similar …	0.716***	0.064	0.487***	0.112
67	The chart shows the types of cookies sold by a local bakery …	1.609***	0.114	-1.461***	0.089
68	If x + 3y = 11 and 2x + 3y = 13, then y =	0.535***	0.064	1.312***	0.207
69	If U={1,2,3,…10} and A={All multiples of 2 that are < 10} …	0.082	0.062	19.018	14.620
70	A rectangular garden that is next to a building …	0.053	0.081	22.630	34.870
72	The graph shows sales of two types of soft drink over 4 years	0.072	0.053	10.953	8.187
73	The perimeter of a square is 36 cm. …	0.376***	0.074	2.520***	0.549
74	Which of the following is simplified form of (3x+4y)×(3x-4y)?	1.246***	0.088	0.092	0.073

Notes: Sample size is 6,801. Weights are not used in these estimates. For all coefficients, * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

Table A5. Two-parameter IRT estimates: Grade 10 mathematics

Question Number	Question	Discrimination Parameter		Difficulty Parameter	
		Coefficient	Std. Error	Coefficient	Std. Error
2	In which number does the 8 have the value of 800?	0.840***	0.085	0.038	0.104
3	What is 15 x 9?	1.890***	0.171	-1.774***	0.108
4	What is 27 ÷ 3?	2.365***	0.226	-1.638***	0.097
5	Five children drew a circle to play a game…	0.829***	0.080	-0.380***	0.079
6	One of these angles is a right angle. Which one?	0.753***	0.080	-0.121	0.106
7	How many right angles are there in 270 degrees?	1.346***	0.101	-0.565***	0.066
8	Here is a cone. Part of its surface is flat and part of it is curved.	0.642***	0.068	0.294**	0.125
9	The graph below shows the number of books borrowed …	0.311***	0.046	0.647***	0.198
10	If A = {a,e,i, o, u} then what is the value of n(A)?	1.697***	0.090	-1.288***	0.067
11	What is the sum of mode, median..	0.216***	0.076	5.352***	2.059
12	What is the value of x in the given figure?	0.985***	0.082	-0.459***	0.081
13	What is the volume of a cube having side 2 cm?	1.635***	0.081	-0.201***	0.063
14	If the volume of a cube is 216.	1.277***	0.067	-0.200***	0.067
15	What is the degree of x3y2+x4y+x2y3?	0.160**	0.072	4.272**	2.094
16	What is the measure of angle C in the triangle below?	1.881***	0.098	0.023	0.069
17	It takes Diksha 4 minutes to wash a window	1.487***	0.074	-1.233***	0.069
18	Which of the numbers below is equal to 7/10 ?	1.931***	0.117	-1.197***	0.070
19	The figure below shows an equilateral triangle	0.226***	0.086	6.190**	2.467
20	Shaheen has 2 pencil boxes	1.197***	0.073	-0.996***	0.070
21	In which figure below is the dotted line a line of symmetry?	-0.217***	0.071	-8.260***	2.569
22	What is the value of x in …	1.279***	0.078	0.317***	0.082
23	Karen paid x rupees for 3 cartons of juice. What is the price …	0.893***	0.076	0.382***	0.100
24	In the universal set U = { …	-0.205***	0.070	-7.094***	2.255
25	25 × 18 is more than 24 × 18. How much more?	1.678***	0.117	-0.483***	0.065
26	The figure below has three circles with …	1.598***	0.112	-1.045***	0.073
27	Gautam gave a loan of Rs 20,000 at 10% rate of interest …	0.727***	0.070	0.670***	0.143
28	One year a company reported selling 1426 tons …	0.699***	0.074	-0.092	0.102
29	Ekta and Beena's current ages are in the ratio 3:5. The sum …	0.693***	0.101	1.845***	0.320
30	Manoj wants to buy 7 boxes	-0.485***	0.088	-5.190***	0.882
31	What is the value of y?	1.170***	0.079	-0.615***	0.073
32	In the coordinate plane below, which points could have …	0.998***	0.077	0.363***	0.104

33	The sum 691 + 208 is closest to the sum …	0.912***	0.075	0.212**	0.087
34	3/5 + (3/10 × 4/5)	0.934***	0.099	1.001***	0.165
35	Which is the correct area of the given triangle ?	1.081***	0.077	0.816***	0.114
36	Which of these is the reason that PQR is a right angle ?	1.150***	0.076	-0.365***	0.070
43	Which of these has the same value as 342?	1.776***	0.146	-1.685***	0.098
44	What is 48 × 5?	1.893***	0.202	-1.867***	0.135
45	What is 6 ÷ 3?	1.580***	0.151	-1.644***	0.129
46	All of the students in a class cut out paper shapes	0.870***	0.084	-1.171***	0.105
47	Which angle has the greatest degree measure?	1.093***	0.081	0.275***	0.091
48	Which of the following is not a parallelogram?	0.712***	0.080	1.390***	0.213
50	Figures that are the same size and shape are called …	1.028***	0.093	-0.893***	0.088
51	If a square has one side 6 cm, then what will be the area?	1.234***	0.092	-0.780***	0.078
52	In the figure, if the two rays are parallel what is the value of x?	0.878***	0.086	0.634***	0.126
53	There were m boys and n girls in a parade …	1.519***	0.111	-0.822***	0.068
54	9/8 × 2/3 =	1.266***	0.097	0.717***	0.103
55	The figure below shows a glass and a jar of equal height	0.966***	0.077	-0.393***	0.075
56	Nihal has a loan of 8,000 Nepalese Rupees (NPR) with Bank A	0.220***	0.070	3.267***	1.140
57	At a local market, you can buy tomatoes by the pound or by …	0.678***	0.067	-0.656***	0.094
58	There are 36 passengers on a bus	0.653***	0.073	0.660***	0.147
59	Which of the following expressions is equal to 2x-3y+7x+5y?	0.755***	0.068	0.928***	0.139
60	Which angle in the figure has a measure …	0.740***	0.072	0.060	0.105
61	In the figure above, ABCD is a rectangle, and circles.	1.092***	0.121	1.882***	0.235
62	The product 22.5 × 10 lies between …	1.103***	0.103	1.221***	0.154
63	4/100 + 3/100	1.160***	0.094	-0.281***	0.090
64	Two of the triangles below are similar …	0.566***	0.062	0.628***	0.148

Notes: Sample size is 5,883. Weights are not used in these estimates. For all coefficients, * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

Table A6. Two-parameter IRT estimates: Grade 9 science

Question Number	Question	Discrimination Parameter		Difficulty Parameter	
		Coefficient	Std. Error	Coefficient	Std. Error
2	Which one of the options below ONLY includes living things?	1.001***	0.091	-1.604***	0.135
3	What feature is shared by ALL insects?	0.093*	0.054	10.554*	6.153
4	What is the chemical formula of water?	1.057***	0.077	-1.988***	0.126
5	Fossil fuels were formed from:	0.627***	0.055	0.934***	0.148
6	Which of the following grows from a seed?	0.721***	0.081	-2.257***	0.230
7	What is the name of the liquid used in the below instrument?	0.690***	0.064	-1.045***	0.127
8	What is the rate of change in velocity per unit of time?	0.559***	0.054	-2.086***	0.195
9	Manga observed the shape of the moon three different times …	0.213***	0.060	1.644***	0.558
10	The nearest planet to the Earth is:	0.048	0.073	27.276	41.956
11	Air is made up of many gases …	0.945***	0.072	0.622***	0.083
12	Which gas could cause a glowing splint to burst into flames?	0.779***	0.057	0.727***	0.109
13	What amount of potential difference exists in the electrical …	0.301***	0.049	2.869***	0.541
14	Which of the following is a satellite of a planet?	0.910***	0059	-0.130**	0.064
15	The symbol of the element Nitrogen is…	1.651***	0.145	-1.842***	0.130
16	Which of the following is the lightest gas in the atmosphere?	0.747***	0.072	0.892***	0.138
17	The ratio of the effort arm to the load arm is called …	0.179***	0.044	0.624**	0.300
18	Which subatomic particles lie within the nucleus of an atom?	0.712***	0.049	0.366***	0.086
19	Meghna has two magnets (A and B) …	0.479***	0.043	-0.451***	0.099
20	The Moon produces no light, and yet it shines at night …	1.183***	0.099	-1.463***	0.096
21	Immediately before and after running a 50-meter race, your …	0.642***	0.061	0.087	0.088
22	Kavya goes shopping and buys many things …	0.685***	0.047	-0.956***	0.094
23	The burning of fossil fuels has increased the carbon dioxide …	0.538***	0.050	0.453***	0.107
24	The following waste materials are buried in a landfill …	0.989***	0.135	-2.021***	0.216
25	The figure shows Earth, the Moon, and the Sun …	1.018***	0.071	0.009	0.065
26	Carbon dioxide is the active agent in some fire extinguishers…	-0.155***	0.057	-5.867***	2.096
27	Rakesh found the skull of an animal. He did not know what …	1.120***	0.071	0.045	0.065
28	A beam of light strikes a mirror as shown below …	0.715***	0.056	0.044	0.084
29	CFCs revolutionized personal and industrial life for 30 years…	0.619***	0.066	1.954***	0.223
30	Students used an ammeter A to measure the current in the …	0.534***	0.061	1.548***	0.221
31	A person in a dark room looking through a window …	0.485***	0.050	1.103***	0.170

32	Meha gave some good reasons why kettles and kitchen pans …	0.957***	0.070	-0.875***	0.084
33	Paint applied to iron surfaces …	0.873***	0.070	0.995***	0.105
34	A person sorted some animals …	0.352***	0.078	4.392***	1.010
35	In humans, where does the absorption of food mainly …	0.517***	0.111	4.796***	1.014
36	The shape of the moon appears to change …	0.810***	0.068	0.114	0.082
37	All living things can be grouped as PLANTS or ANIMALS …	0.975***	0.089	-0.752***	0.089
38	The picture shows a block of wood floating in fresh water …	0.486***	0.061	1.205***	0.216
41	Pranav sees a full moon. About how much time will go …	0.307***	0.066	1.251***	0.378
42	The table shows the distance from the sun of four planets …	1.041***	0.100	-0.942***	0.099
44	Study the given atomic structure and select the name of the …	0.983***	0.081	-0.641***	0.080
48	Rahul measures his pulse rate before he exercises.	0.531***	0.072	1.473***	0.234
49	Which of the following pollutes groundwater?	0.462***	0.069	2.404***	0.400
50	Which resource is nonrenewable?	0.716***	0.080	1.237***	0.166
52	What is the chemical formula of carbon dioxide?	0.778***	0.077	-0.206**	0.088
54	Three identical bulbs are connected to a battery system	0.410***	0.073	2.340***	0.472
55	On a warm sunny day, you will feel cooler wearing …	0.720***	0.075	0.694***	0.118
56	Neeraj put a thermometer on a glass filled with …	0.736***	0.082	0.939***	0.146
57	Three gases found in Earth's atmosphere …	0.728***	0.070	1.091***	0.147
58	In living organisms, the level of organization from least …	0.680***	0.069	-0.142*	0.083
59	What is organ X?	0.315***	0.063	-0.363*	0.220
60	An Earth year is the length of time it takes to …	0.768***	0.083	0.931***	0.133
61	Which gas would cause rust to form on a metal can?	0.423***	0.075	2.636***	0.497
65	Why does soap and water remove lipstick?	-0.164**	0.075	-9.166**	4.038
67	Which of the diagrams below best represents what happens …	0.021	0.078	82.977	305.205
71	What is the main function of red blood cells?	0.499***	0.061	1.116***	0.196
72	One of the principal causes of acid rain is …	-0.213***	0.073	-6.334***	2.073
73	Which diagram shows the position of the sun (S), moon (M) …	0.688***	0.077	1.215***	0.172

Notes: Sample size is 6,801. Weights are not used in these estimates. For all coefficients, * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

Table A7. Two-parameter IRT estimates: Grade 10 science

Question Number	Question	Discrimination Parameter		Difficulty Parameter	
		Coefficient	Std. Error	Coefficient	Std. Error
3	What feature is shared by ALL insects?	0.159**	0.070	5.221**	2.457
4	What is the chemical formula of water?	1.311***	0.098	-1.817***	0.103
5	Fossil fuels were formed from:	1.519***	0.092	-0.691***	0.072
6	Which of the following grows from a seed?	0.667***	0.077	-2.132***	0.209
7	What is the name of the liquid used in the below instrument?	0.594***	0.061	-1.432***	0.160
8	What is the rate of change in velocity per unit of time?	0.474***	0.062	-1.954***	0.218
9	Manga observed the shape of the moon three different times …	0.118*	0.062	2.798*	1.653
11	Air is made up of many gases …	1.096***	0.084	0.442***	0.091
12	Which gas could cause a glowing splint to burst into flames?	0.803***	0.078	0.413***	0.124
13	What amount of potential difference exists in the electrical …	0.276***	0.054	2.236***	0.550
14	Which of the following is a satellite of a planet?	1.131***	0.064	-0.179***	0.068
15	The symbol of the element Nitrogen is…	1.413***	0.170	-2.207***	0.193
17	The ratio of the effort arm to the load arm is called …	0.122***	0.045	-1.371**	0.552
18	Which subatomic particles lie within the nucleus of an atom?	0.772***	0.061	-0.027	0.093
20	The Moon produces no light, and yet it shines at night …	0.864***	0.075	-1.396***	0.097
21	Immediately before and after running a 50-meter race, your …	0.837***	0.072	-0.211**	0.087
22	Kavya goes shopping and buys many things …	0.493***	0.064	-1.681***	0.217
23	The burning of fossil fuels has increased the carbon dioxide …	0.716***	0.052	0.068	0.078
24	The following waste materials are buried in a landfill …	1.050***	0.112	-2.060***	0.179
25	The figure shows Earth, the Moon, and the Sun …	1.127***	0.089	-0.230***	0.074
26	Carbon dioxide is the active agent in some fire extinguishers…	-0.124	0.078	-6.967	4.247
27	Rakesh found the skull of an animal. He did not know what …	1.053***	0.088	-0.255***	0.092
29	CFCs revolutionized personal and industrial life for 30 years…	1.143***	0.091	0.362***	0.087
30	Students used an ammeter A to measure the current in the …	0.603***	0.080	1.142***	0.215
31	A person in a dark room looking through a window …	0.428***	0.065	0.942***	0.208
32	Meha gave some good reasons why kettles and kitchen pans …	1.018***	0.086	-1.264***	0.102
33	Paint applied to iron surfaces …	1.017***	0.092	0.592***	0.105
34	A person sorted some animals …	0.365***	0.098	4.096***	1.138
35	In humans, where does the absorption of food mainly …	0.618***	0.100	3.520***	0.592
36	The shape of the moon appears to change …	0.836***	0.076	-0.035	0.096

37	All living things can be grouped as PLANTS or ANIMALS …	1.026***	0.084	-0.764***	0.090
38	The picture shows a block of wood floating in fresh water …	0.819***	0.077	-0.072	0.095
39	An animal has six legs. What is it most likely to be?	0.072	0.073	8.636	9.156
40	The name of four blood types of blood vessels …	0.275***	0.083	5.660***	1.785
41	Pranav sees a full moon. About how much time will go …	0.403***	0.066	0.940***	0.240
42	The table shows the distance from the sun of four planets …	1.425***	0.114	-1.002***	0.094
43	When a ray of light passes from air into water, it …	0.205***	0.043	3.261***	0.729
44	Study the given atomic structure and select the name of the …	1.169***	0.109	-0.783***	0.089
45	Hari pours 3 ml conc. HCL …	0.460***	0.075	2.019***	0.400
46	Magnetic lines of force propagate …	0.266***	0.069	1.289***	0.466
47	Which of the following is the major cause of tides?	0.885***	0.094	0.646***	0.137
48	Rahul measures his pulse rate before he exercises.	0.626***	0.075	1.147***	0.183
49	Which of the following pollutes groundwater?	0.779***	0.084	0.890***	0.154
50	Which resource is nonrenewable?	0.992***	0.088	0.024	0.090
51	Which one of the following statements best describes …	0.368***	0.054	1.320***	0.255
52	What is the chemical formula of carbon dioxide?	1.136***	0.087	-0.670***	0.069
53	Twins are born. One is a boy and one is a girl …	0.622***	0.075	-1.430***	0.178
54	Three identical bulbs are connected to a battery system	0.445***	0.079	1.896***	0.377
55	On a warm sunny day, you will feel cooler wearing …	0.722***	0.068	-0.021	0.097
56	Neeraj put a thermometer on a glass filled with …	1.128***	0.090	0.394***	0.092
57	Three gases found in Earth's atmosphere …	0.520***	0.078	1.318***	0.266
58	In living organisms, the level of organization from least …	0.499***	0.077	-0.248**	-0.126
59	What is organ X?	0.340***	0.076	-0.011	0.205
60	An Earth year is the length of time it takes to …	0.898***	0.092	0.674***	0.131

Notes: Sample size is 5,833. Weights are not used in these estimates. For all coefficients, * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

Table A8: ITT Estimates of impact of SSDP training on students' normalized test scores, full endline sample

	Combined Treatment Effect		Separate Treatment Effects					Sample Size
	Treat	R^2	TT	TTVA	P-value: $\beta_{TT} = \beta_{TTVA} = 0$	P-value: $\beta_{TT} = \beta_{TTVA}$	R^2	
Full assessments								
Grade 9 math	-0.110* (0.066)	0.229	-0.176** (0.070)	-0.052 (0.080)	0.037**	0.108	0.231	6,800
Grade 9 science	-0.109* (0.060)	0.160	-0.124* (0.070)	-0.095 (0.069)	0.177	0.686	0.160	6,797
Grade 10 math	-0.044 (0.072)	0.253	-0.048 (0.087)	-0.040 (0.091)	0.827	0.934	0.253	5,832
Grade 10 science	0.006 (0.074)	0.181	0.009 (0.083)	0.003 (0.100)	0.994	0.951	0.181	5,829
SSDP focus items								
Grade 9 math	-0.046 (0.066)	0.163	-0.139** (0.067)	0.036 (0.081)	0.034**	0.023**	0.167	6,800
Grade 9 science	-0.100* (0.057)	0.126	-0.108 (0.067)	-0.092 (0.065)	0.212	0.824	0.126	6,797
Grade 10 math	-0.037 (0.070)	0.207	-0.035 (0.086)	-0.038 (0.088)	0.873	0.978	0.207	5,832
Grade 10 science	0.024 (0.072)	0.142	0.059 (0.082)	-0.008 (0.098)	0.745	0.548	0.143	5,829

Notes: Estimates of β_T are from WLS regressions of the normalized student assessment scores on the treatment variable(s), district by priority stratum fixed effects, and dummy variables for whether assent was requested before or after the test and whether the math test was administered first (followed by the science test). School-level population weights are explained in Appendix D. Standard errors, in parentheses, account for random assignment within strata and are clustered at the school level. Statistical significance at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A9: ITT estimates of impact of SSDP training on students' normalized test scores, panel sample

	Combined Treatment Effect			Separate Treatment Effect						Sample Size
	Treat	Baseline Test Score	R^2	TT	TTVA	Baseline Test Score	P-value: $\beta_{TT} = \beta_{TTVA} = 0$	P-value: $\beta_{TT} = \beta_{TTVA}$	R^2	
Full assessments										
Grade 9 math	-0.107** (0.050)	0.532*** (0.020)	0.428	-0.155*** (0.059)	-0.064 (0.059)	0.530*** (0.020)	0.034**	0.156	0.429	4,903
Grade 9 science	-0.106* (0.054)	0.494*** (0.022)	0.350	-0.099 (0.062)	-0.112* (0.066)	0.494*** (0.022)	0.155	0.853	0.350	4,901
Grade 10 math	-0.000 (0.050)	0.563*** (0.017)	0.494	-0.008 (0.059)	0.008 (0.067)	0.563*** (0.017)	0.978	0.836	0.494	4,992
Grade 10 science	0.025 (0.061)	0.502*** (0.021)	0.359	0.053 (0.070)	-0.000 (0.081)	0.503*** (0.021)	0.734	0.559	0.359	4,990
SSDP focus items										
Grade 9 math	-0.054 (0.056)	0.444*** (0.021)	0.307	-0.133** (0.061)	0.018 (0.066)	0.443*** (0.021)	0.041**	0.027**	0.309	4,903
Grade 9 science	-0.075 (0.054)	0.426*** (0.020)	0.254	-0.050 (0.065)	-0.098 (0.061)	0.427*** (0.020)	0.287	0.455	0.254	4,901
Grade 10 math	-0.024 (0.059)	0.444*** (0.018)	0.352	-0.011 (0.072)	-0.037 (0.077)	0.444*** (0.018)	0.893	0.779	0.352	4,992
Grade 10 science	0.022 (0.063)	0.433*** (0.019)	0.266	0.070 (0.072)	-0.022 (0.084)	0.434*** (0.019)	0.541	0.333	0.267	4,990

Notes: Estimates of β_T are from WLS regressions of the normalized student assessment scores on the treatment variable(s), the baseline test score, district by priority stratum fixed effects, and dummy variables for whether assent was requested before or after the test and whether the math test was administered first (followed by the science test). School-level population weights are explained in Appendix D. Standard errors, in parentheses, account for random assignment within strata and are clustered at the school level. Statistical significance at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A10: IV/LATE estimates of impact of SSDP training on students' normalized test scores, full endline sample

	Combined Treatment Effect		Separate Treatment Effect					Sample Size
	Treat	R^2	TT	TTVA	P-value: $\beta_{TT} = \beta_{TTVA} = 0$	P-value: $\beta_{TT} = \beta_{TTVA}$	R^2	
Full assessments								
Grade 9 math	-0.143 (0.094)	0.240	-0.234** (0.105)	-0.058 (0.120)	0.085*	0.183	0.245	6,048
Grade 9 science	-0.279 (0.178)	0.145	-0.572 (0.348)	-0.124 (0.170)	0.251	0.199	0.128	5,963
Grade 10 math	-0.100 (0.105)	0.262	-0.009 (0.105)	-0.208 (0.161)	0.425	0.238	0.263	5,098
Grade 10 science	-0.050 (0.155)	0.175	-0.148 (0.320)	-0.012 (0.153)	0.899	0.674	0.173	5,003
SSDP focus items								
Grade 9 math	-0.046 (0.093)	0.177	-0.181* (0.102)	0.081 (0.121)	0.099*	0.050**	0.183	6,048
Grade 9 science	-0.252 (0.165)	0.117	-0.490 (0.324)	-0.126 (0.156)	0.292	0.263	0.105	5,963
Grade 10 math	-0.100 (0.105)	0.262	0.014 (0.108)	-0.186 (0.154)	0.447	0.231	0.215	5,098
Grade 10 science	-0.037 (0.148)	0.137	-0.029 (0.303)	-0.040 (0.148)	0.963	0.970	0.138	5,003

Note: All estimates are for β_T from instrumental variable (IV) regressions of normalized student assessment scores on a variable indicating that the student's teacher received training (instrumented by treatment assignment), district by priority stratum fixed effects, and dummy variables for whether assent was requested before or after the test and for whether the math test was administered first (followed by the science test). The school-level population weights are explained in Appendix D. Regression standard errors, in parentheses, account for random assignment within strata and are clustered at the school level. Estimates statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A11: IV/LATE estimates of impact of SSDP training on students' normalized test scores, panel sample

	Combined Treatment Effect			Separate Treatment Effect						Sample Size
	Treat	Baseline Test Score	R^2	TT	TTVA	Baseline Test Score	P-value: $\beta_{TT} = \beta_{TTVA} = 0$	P-value: $\beta_{TT} = \beta_{TTVA}$	R^2	
Full assessments										
Grade 9 math	-0.145** (0.069)	0.526*** (0.022)	0.433	-0.199** (0.087)	-0.089 (0.088)	0.524*** (0.022)	0.069*	0.316	0.434	4,353
Grade 9 science	-0.298* (0.157)	0.516*** (0.023)	0.350	-0.364 (0.237)	-0.255 (0.157)	0.517*** (0.022)	0.175	0.628	0.348	4,336
Grade 10 math	-0.023 (0.080)	0.537*** (0.020)	0.476	0.025 (0.082)	-0.084 (0.132)	0.536*** (0.020)	0.750	0.448	0.476	4,343
Grade 10 science	-0.026 (0.122)	0.501*** (0.021)	0.363	-0.026 (0.246)	-0.026 (0.120)	0.501*** (0.021)	0.976	0.998	0.363	4,310
SSDP focus items										
Grade 9 math	-0.051 (0.076)	0.442*** (0.021)	0.315	-0.147 (0.092)	0.050 (0.098)	0.440*** (0.021)	0.200	0.103	0.319	4,353
Grade 9 science	-0.167 (0.153)	0.445*** (0.021)	0.262	-0.172 (0.245)	-0.164 (0.136)	0.445*** (0.021)	0.479	0.970	0.262	4,336
Grade 10 math	-0.055 (0.091)	0.412*** (0.019)	0.336	0.015 (0.094)	-0.142 (0.150)	0.411*** (0.019)	0.608	0.335	0.337	4,343
Grade 10 science	-0.048 (0.125)	0.433*** (0.020)	0.266	-0.001 (0.253)	-0.067 (0.124)	0.432*** (0.020)	0.861	0.800	0.267	4,310

Note: All estimates are for β_T from instrumental variable (IV) regressions of normalized student assessment scores on a variable indicating that the student's teacher received training (instrumented by treatment assignment), baseline test score, district by priority stratum fixed effects, and dummy variables for whether assent was requested before or after the test and for whether the math test was administered first (followed by the science test). The school-level population weights are explained in Appendix D. Regression standard errors, in parentheses, account for random assignment within strata and are clustered at the school level. Estimates statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A12 : ITT estimates of impact of days of exposure to teachers offered SSDP training on students' normalized test scores, full endline sample

	Days from End of Training to Endline Testing		Estimated Effects		
	Treated Schools	Control Schools	Days of Exposure	R^2	Sample Size
Grade 9 math	343.2 (43.5)	0.0 (0.0)	-0.00034* (0.00019)	0.229	6,801
Grade 9 science	285.2 (37.3)	0.0 (0.0)	-0.00039* (0.00020)	0.160	6,801
Grade 10 math	343.3 (45.0)	0.0 (0.0)	-0.00017 (0.00021)	0.253	5,833
Grade 10 science	284.3 (41.1)	0.0 (0.0)	0.00005 (0.00025)	0.181	5,833

Notes: Estimates of β_T from WLS regressions of normalized student assessment scores on the days of exposure to teachers offered SSDP training, district by priority stratum fixed effects, and dummy variables for whether assent was requested before or after the test and whether the math test was given first (followed by the science test). School-level population weights are explained in Appendix D. The first two columns show standard deviations of the days of exposure to trained teachers variable, in parentheses. Standard errors, in parentheses in the third column, account for random assignment within strata and are clustered at the school level. Statistical significance at .10, .05 and .01 levels indicated by *, ** and ***.

Table A13. Analysis of ITT combined treatment impact heterogeneity by teacher and school characteristics, full endline sample

	Grade 9		Grade 10	
	Mathematics	Science	Mathematics	Science
Heterogeneity by whether teacher had SSRP training				
Treat	-0.060	-0.129*	-0.051	-0.119
	(0.084)	(0.077)	(0.093)	(0.095)
Teacher had SSRP training	0.276**	0.025	0.083	-0.244**
	(0.122)	(0.130)	(0.098)	(0.120)
Treat × Teacher had SSRP training	-0.115	0.062	-0.048	0.385**
	(0.197)	(0.160)	(0.145)	(0.183)
P-value for test of joint significance of Treat and interaction term	0.335	0.221	0.484	0.113
R^2	0.252	0.159	0.265	0.180
Sample size	5,863	5,861	4,965	4,930
Heterogeneity by Teacher Contract Type				
Treat	-0.037	-0.044	-0.045	-0.059
	(0.090)	(0.077)	(0.084)	(0.091)
Teacher has a permanent contract	0.265**	0.232**	-0.005	-0.113
	(0.117)	(0.112)	(0.106)	(0.155)
Treat × Teacher has a permanent contract	-0.214	-0.267*	-0.090	0.143
	(0.160)	(0.138)	(0.132)	(0.260)
P-value for test of joint significance of Treat and interaction term	0.054*	0.020**	0.354	0.776
R^2	0.249	0.168	0.261	0.175
Sample size	6,048	5,989	5,098	5,036
Heterogeneity by Teacher Experience				
Treat	-0.135*	-0.108	-0.100	-0.046
	(0.070)	(0.083)	(0.077)	(0.121)
Teacher has 5 or fewer years of experience	-0.340***	0.079	-0.280**	0.104
	(0.095)	(0.097)	(0.122)	(0.146)
Treat × Teacher has 5 or fewer years of experience	0.056	0.030	0.100	0.009
	(0.210)	(0.149)	(0.212)	(0.230)
P-value for test of joint significance of Treat and interaction term	0.150	0.319	0.428	0.869
R^2	0.247	0.166	0.268	0.178
Sample size	5,702	5,691	4,877	4,852

Heterogeneity by School Management Quality				
Treat	-0.154*	-0.144	-0.153	-0.081
	(0.091)	(0.092)	(0.100)	(0.108)
School in top half of management quality index (MQI)	-0.135	-0.066	-0.103	-0.070
	(0.095)	(0.096)	(0.121)	(0.127)
Treat × School in top half of MQI	0.100	0.076	0.217	0.174
	(0.134)	(0.127)	(0.163)	(0.167)
P-value for test of joint significance of Treat and interaction term	0.209	0.202	0.292	0.586
R^2	0.231	0.161	0.255	0.183
Sample size	6,771	6,768	5,792	5,788

Note: All estimates are for β_T from WLS regressions of normalized student assessment scores on the treat variable, the heterogeneity variable, the interaction of the treat and heterogeneity variables, district by priority stratum fixed effects, and dummy variables for whether assent was requested before or after the test and for whether the math test was administered first (followed by the science test). The school-level population weights are explained in Appendix D. Regression standard errors, in parentheses, account for random assignment within strata and are clustered at the school level. Estimates statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A14. Analysis of ITT combined treatment impact heterogeneity by student ethnicity, full endline sample

	Grade 9		Grade 10	
	Mathematics	Science	Mathematics	Science
Treat	-0.361*	-0.344*	-0.252	0.088
	(0.194)	(0.179)	(0.207)	(0.294)
Brahmin/Chhetri	-0.094	-0.080	0.168	0.222
	(0.156)	(0.142)	(0.129)	(0.254)
Treat × Brahmin/Chhetri	0.167	0.180	0.160	-0.090
	(0.206)	(0.194)	(0.224)	(0.298)
Terai/Madheshi	-0.488**	-0.438**	-0.152	-0.121
	(0.203)	(0.198)	(0.165)	(0.287)
Treat × Terai/Madheshi	0.278	0.179	0.152	-0.122
	(0.286)	(0.248)	(0.266)	(0.341)
Dalit	-0.418**	-0.408***	-0.251*	-0.225
	(0.167)	(0.144)	(0.134)	(0.254)
Treat × Dalit	0.187	0.170	0.379	0.081
	(0.211)	(0.201)	(0.235)	(0.301)
Newar	-0.555***	-0.527***	0.084	0.047
	(0.184)	(0.170)	(0.173)	(0.272)
Treat × Newar	0.455*	0.556**	0.255	0.069
	(0.235)	(0.262)	(0.272)	(0.334)
Janajati	-0.525***	-0.455***	-0.053	0.002
	(0.158)	(0.139)	(0.149)	(0.267)
Treat × Janajati	0.389*	0.358*	0.244	-0.103
	(0.205)	(0.192)	(0.230)	(0.309)
Muslim	-0.450*	-0.363*	-0.076	0.020
	(0.247)	(0.218)	(0.262)	(0.312)
Treat × Muslim	0.148	-0.139	0.172	-0.045
	(0.315)	(0.319)	(0.326)	(0.383)
P-value for test of joint significance of the interaction terms	0.282	0.139	0.523	0.739
P-value for test of joint significance of the Treat indicator and the interaction term	0.218	0.056*	0.568	0.813
R^2	0.253	0.183	0.267	0.199
Sample size	6,801	6,798	5,833	5,829

Note: All estimates are for β_T from WLS regressions of normalized student assessment scores on the treat variable, the heterogeneity variable, the interaction of the treat and heterogeneity variables, district by priority stratum fixed effects, and dummy variables for whether assent was requested before or after the test and for whether the math test was administered first (followed by the science test). The school-level population weights are explained in Appendix D. Regression standard errors, in parentheses, account for random assignment within strata and are clustered at the school level. Estimates statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A15. Analysis of ITT combined treatment impact heterogeneity by level of student academic ability

	Grade 9		Grade 10	
	Mathematics	Science	Mathematics	Science
Heterogeneity by Students' Baseline Scores, panel sample				
Treat	-0.094	-0.070	-0.034	0.030
	(0.066)	(0.082)	(0.062)	(0.073)
Baseline score in bottom tercile	-0.469***	-0.508***	-0.434***	-0.479***
	(0.055)	(0.044)	(0.046)	(0.059)
Treat × Baseline score in bottom tercile	0.128*	0.038	0.045	0.081
	(0.074)	(0.082)	(0.065)	(0.080)
Baseline score in top tercile	0.706***	0.610***	0.736***	0.613***
	(0.057)	(0.052)	(0.052)	(0.068)
Treat × Baseline score in top tercile	-0.149*	-0.131	0.067	-0.149
	(0.079)	(0.095)	(0.079)	(0.094)
P-value for test of joint significance of the interaction terms	0.012**	0.210	0.606	0.115
P-value for test of joint significance of Treat and the interaction terms	0.001***	0.089*	0.799	0.221
R^2	0.383	0.309	0.441	0.315
Sample size	4,903	4,901	4,992	4,990
Heterogeneity by Student Scores on Grade 7 and Below Questions, full endline sample				
Treat	0.101	0.058	0.013	-0.059
	(0.075)	(0.078)	(0.087)	(0.099)
Percent correct on Grade 7 & below questions	3.739***	3.007***	3.378***	2.340***
	(0.107)	(0.096)	(0.106)	(0.089)
Treat × Pct. correct on Grade 7 & below quests.	-0.180	-0.221	-0.039	0.113
	(0.136)	(0.146)	(0.156)	(0.153)
P-value for test of joint significance of Treat and the interaction term	0.392	0.120	0.956	0.757
R^2	0.550	0.443	0.537	0.394
Sample size	6,801	6,798	5,833	5,829

Note: All estimates are for β_T from WLS regressions of normalized student assessment scores on the treat variable, the heterogeneity variable, the interaction of the treat and heterogeneity variables, district by priority stratum fixed effects, and dummy variables for whether assent was requested before or after the test and for whether the math test was administered first (followed by the science test). The school-level population weights are explained in Appendix D. Regression standard errors, in parentheses, account for random assignment within strata and are clustered at the school level. Estimates statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A16: ITT Estimates of combined treatment impact, heterogeneity by selected student, household and teacher characteristics, full endline sample

	Grade 9		Grade 10	
	Mathematics	Science	Mathematics	Science
Heterogeneity by Gender of Student				
Treat (Male student)	-0.143**	-0.161***	-0.139*	-0.070
	(0.068)	(0.062)	(0.081)	(0.088)
Treat (Female student)	-0.085	-0.068	0.033	0.067
	(0.075)	(0.070)	(0.078)	(0.077)
Female student	-0.332***	-0.340***	-0.474***	-0.486***
	(0.049)	(0.046)	(0.044)	(0.043)
R^2	0.253	0.183	0.292	0.226
Sample size	6,791	6,788	5,827	5,821
By Education of Parents				
Treat (Parent, Secondary or Higher)	-0.125*	-0.152**	-0.061	-0.018
	(0.067)	(0.062)	(0.081)	(0.087)
Treat (Parent, Less than Secondary)	-0.090	-0.059	-0.035	0.023
	(0.075)	(0.072)	(0.073)	(0.079)
Parent Education, Secondary or Higher	0.327***	0.322***	0.254***	0.235***
	(0.041)	(0.047)	(0.046)	(0.056)
R^2	0.253	0.181	0.266	0.192
Sample size	6,801	6,798	5,833	5,829
By Teacher Contract Status				
Treat (Permanent Teacher)	-0.251**	-0.315***	-0.136	0.084
	(0.112)	(0.114)	(0.101)	(0.237)
Treat (Not Permanent Teacher)	-0.037	-0.047	-0.045	-0.060
	(0.090)	(0.075)	(0.084)	(0.091)
Permanent Teacher	0.265**	0.244**	-0.005	-0.113
	(0.117)	(0.114)	(0.106)	(0.155)
R^2	0.249	0.172	0.261	0.176
Sample size	6,048	5,861	5,098	4,987

Note: All estimates are for β_T from WLS regressions of normalized student assessment scores on the treat variable, the heterogeneity variable, the interactions of the treat variable with the two mutually exclusive categories of the heterogeneity variable, district by priority stratum fixed effects, and dummy variables for whether assent was requested before or after the test and for whether the math test was administered first (followed by the science test). The school-level population weights are explained in Appendix D. Regression standard errors, in parentheses, account for random assignment within strata and are clustered at the school level. Estimates statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A17. Estimated ITT impacts of SSDP training on teachers' test scores

	Mathematics	Science
Combined effect		
Treat	0.017	-0.113
	(0.144)	(0.109)
R^2	0.223	0.348
Separate effects		
TT	-0.120	-0.247
	(0.164)	(0.150)
TTVA	0.155	0.012
	(0.179)	(0.122)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.362	0.223
P-value: $\beta_{TT} = \beta_{TTVA}$	0.153	0.117
R^2	0.232	0.357
Sample size	246	233

Note: The unit of observation is the teacher. Teacher test scores were estimated using Item Response Theory analysis of their answers to student assessment items, and then normalized by subtracting the control group mean and dividing the difference by the control group standard deviation. Coefficient estimates are from regressions of the dependent variable on the treatment variable(s) and strata dummy variables, using WLS estimation. All test statistics account for the stratified sample design and clustered standard errors at the school level. Teacher assessment scores are derived from "Student Assessment Item Evaluations Forms" that teachers were asked to complete anonymously (see text). School-level population weights are explained in Appendix D. For the science evaluation regressions, one stratum included only one school for which this measure was available, so this stratum had to be dropped. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A18. Estimated ITT impacts of SSDP training on whether teacher is very interested in learning ways to teach more effectively (as assessed by head teacher)

	Math and Science	Math only	Science only
Combined effect			
Treat	0.049	0.219	-0.059
	(0.144)	(0.182)	(0.184)
Separate effects			
TT	-0.108	-0.001	-0.187
	(0.172)	(0.228)	(0.222)
TTVA	0.196	0.404*	0.051
	(0.176)	(0.216)	(0.223)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.308	0.141	0.601
P-value: $\beta_{TT} = \beta_{TTVA}$	0.130	0.113	0.348
Sample size	443	236	235

Note: The unit of observation is the teacher. Tests of no impact of the SSDP teacher training are based on regressions of the dependent variable on the treat variable and strata dummy variables, using weighted probit estimation. The test statistics account for the stratified sample design and clustered standard errors at the school level. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A19. Estimated ITT impacts of SSDP training on teacher command of subject matter (as assessed by head teacher)

	Math and Science	Math only	Science only
Combined effect			
Treat	-0.068	0.098	-0.117
	(0.119)	(0.166)	(0.170)
Separate effects			
TT	-0.322**	-0.173	-0.437**
	(0.140)	(0.195)	(0.202)
TTVA	0.173	0.343*	0.168
	(0.149)	(0.204)	(0.205)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.011**	0.070*	0.021**
P-value: $\beta_{TT} = \beta_{TTVA}$	0.004***	0.023**	0.008***
Sample size	442	252	238

Notes: The unit of observation is the teacher. The dependent variable may take the values "very weak," "partial" or "good." Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each ordered probit regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A20. Estimated ITT impacts of SSDP training on whether teacher is present on first day of school visit (by enumerator observation)

	Coefficient
Combined effect	
Treat	-0.126
	(0.157)
Separate effects	
TT	-0.098
	(0.179)
TTVA	-0.151
	(0.217)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.724
P-value: $\beta_{TT} = \beta_{TTVA}$	0.834
Sample size	333

Notes: The unit of observation is the teacher. Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each probit regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A21. Estimated ITT impacts of SSDP training on regularity of teacher attendance (as assessed by head teacher)

	Math and Science	Math only	Science only
Combined effect			
Treat	0.193	0.001	0.396**
	(0.139)	(0.165)	(0.181)
Separate effects			
TT	0.278	0.040	0.472**
	(0.175)	(0.208)	(0.229)
TTVA	0.107	-0.035	0.324
	(0.175)	(0.206)	(0.229)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.282	0.956	0.082*
P-value: $\beta_{TT} = \beta_{TTVA}$	0.419	0.763	0.600
Sample size	443	252	239

Notes: The unit of observation is the teacher. The dependent variable may take the values "90 percent or higher," "80-89 percent" or "below 80 percent." Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each ordered probit regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A22. Estimated ITT impacts of SSDP training on frequency of teacher absence (by student report)

	Math teacher	Science teacher
Combined effect		
Treat	0.013	0.098
	(0.071)	(0.067)
Separate effects		
TT	0.064	0.155
	(0.085)	(0.092)
TTVA	-0.033	0.046
	(0.086)	(0.067)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.567	0.249
P-value: $\beta_{TT} = \beta_{TTVA}$	0.298	0.236
Sample size	12,602	12,573

Notes: The unit of observation is the student. The dependent variable may take the values "Never absent" "Absent 1 or 2 times a month or less" "Absent 3 or more times a month/At least once a week". Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each ordered probit regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A23. Estimated ITT impacts of SSDP training on teacher's frequency of assigning homework (by student report)

	Math teachers	Science teachers
Combined effect		
Treat	0.004	-0.026
	(0.079)	(0.099)
Separate effects		
TT	-0.067	-0.104
	(0.101)	(0.134)
TTVA	0.070	0.045
	(0.094)	(0.106)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.480	0.591
P-value: $\beta_{TT} = \beta_{TTVA}$	0.227	0.305
Sample size	12,530	12,532

Notes: The unit of observation is a student. Dependent variable may take the values "Less than every day" and "Every day" for math teachers. It may take the values "Up to once a week/never", "2-3 times per week" and "every day" for science teachers. Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each ordered probit regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A24. Estimated ITT impacts of SSDP training on teacher's frequency of checking homework (by student report)

	Math teachers	Science teachers
Combined effect		
Treat	-0.055	-0.037
	(0.086)	(0.079)
Separate effects		
TT	-0.173	-0.167
	(0.101)	(0.101)
TTVA	0.057	0.081
	(0.102)	(0.088)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.095*	0.082*
P-value: $\beta_{TT} = \beta_{TTVA}$	0.040**	0.026**
Sample size	12,482	12,491

Notes: The unit of observation is a student. The dependent variable may take the values "Up to once a week", "2-3 times a week" or "Every day" for math teachers, and the values "Never", "Up to once a week", "2-3 time a week" and "Every day" for science teachers. Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each ordered probit regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A25. Estimated ITT impacts of SSDP training on teacher's frequency of returning homework with corrections (by student report)

	Math teachers	Science teachers
Combined effect		
Treat	0.008	-0.053
	(0.084)	(0.070)
Separate effects		
TT	-0.113	-0.201**
	(0.099)	(0.095)
TTVA	0.125	0.088
	(0.095)	(0.074)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.067*	0.021**
P-value: $\beta_{TT} = \beta_{TTVA}$	0.020**	0.005***
Sample size	12,505	12,571

Notes: The unit of observation is a student. The dependent variable may take the values "Up to once a week", "2-3 times a week" and "Every day" for math teachers, and the values "Never", "Up to once a week", "2-3 times a week", and "Every day" for science teachers. Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each ordered probit regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A26. Estimated ITT impacts of SSDP training on teacher's frequency of asking students questions or having discussions with students (by student report)

	Math teachers	Science teachers
Combined effect		
Treat	-0.083	-0.038
	(0.076)	(0.059)
Separate effects		
TT	-0.078	-0.065
	(0.089)	(0.080)
TTVA	-0.088	-0.015
	(0.090)	(0.070)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.546	0.722
P-value: $\beta_{TT} = \beta_{TTVA}$	0.913	0.585
Sample size	12,535	12,550

Notes: The unit of observation is the student. The dependent variable may take the values "Up to once a week/never", "2-3 times a week" or "Every day". Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each ordered probit regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A27. Estimated ITT impacts of SSDP training on teacher's frequency of requiring students to work in small groups (by student report)

	Math teachers	Science teachers
Combined effect		
Treat	0.023	0.001
	(0.075)	(0.078)
Separate effects		
TT	-0.048	-0.074
	(0.100)	(0.105)
TTVA	0.087	0.069
	(0.085)	(0.083)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.417	0.390
P-value: $\beta_{TT} = \beta_{TTVA}$	0.216	0.181
Sample size	12,572	12,559

Notes: The unit of observation is the student. The dependent variables may take the values "Never", "Less than once a week", "Once a week", "2-3 time a week", or "Every day". Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each ordered probit regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A28. Estimated ITT impacts of SSDP training on teacher's frequency of giving demonstrations with objects made from local material (by student report)

	Math teachers	Science teachers
Combined effect		
Treat	0.031	0.005
	(0.083)	(0.079)
Separate effects		
TT	-0.168*	-0.159
	(0.098)	(0.091)
TTVA	0.211**	0.155
	(0.098)	(0.090)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.004***	0.011**
P-value: $\beta_{TT} = \beta_{TTVA}$	0.001***	0.003***
Sample size	12,552	12,574

Notes: The unit of observation is the student. The dependent variables may take the values "Never", "Less than once a week", "Once a week", "2-3 time a week" or "Every day". Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each ordered probit regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A29. Estimated ITT impacts of SSDP Training on teacher's frequency of giving demonstrations with diagrams, pictures or information from internet (by student report)

	Math teachers	Science teachers
Combined effect		
Treat	0.008	-0.059
	(0.068)	(0.068)
Separate effects		
TT	-0.036	-0.172**
	(0.078)	(0.085)
TTVA	0.049	0.044
	(0.088)	(0.084)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.673	0.074*
P-value: $\beta_{TT} = \beta_{TTVA}$	0.373	0.036**
Sample size	12,574	12,561

Notes: The unit of observation is the student. The dependent variables may take the values "Never," "Less than once a week," "Once a week," "2-3 time per week," or "Every day." Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each ordered probit regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Tale A30. Estimated ITT impacts of SSDP training on whether teacher creates teaching materials from local resources (as assessed by head teacher)

	Math and Science	Math only	Science only
Combined effect	-0.008	0.062	-0.057
Treat	(0.158)	(0.196)	(0.217)
Separate effects			
TT	-0.249	-0.140	-0.477*
	(0.186)	(0.235)	(0.255)
TTVA	0.217	0.247	0.294
	(0.199)	(0.244)	(0.263)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.113	0.370	0.028**
P-value: $\beta_{TT} = \beta_{TTVA}$	0.038**	0.163	0.009***
Sample size	430	241	218

Notes: The unit of observation is the teacher. Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each probit regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively. Note that the probit regressions in the first column are based on 430 observations, not 437 observations as reported in Table 13, because adjusting the standard errors for stratification drops 7 strata that have only one observation.

Table A31. Estimated ITT impacts of SSDP training on teacher's frequency of use of teaching materials or visual aids (as assessed by head teacher)

	Math and Science	Math only	Science only
Combined effect			
Treat	0.263*	0.425**	0.184
	(0.145)	(0.178)	(0.197)
Separate effects			
TT	0.247	0.451*	0.044
	(0.194)	(0.231)	(0.293)
TTVA	0.278	0.401*	0.307
	(0.186)	(0.224)	(0.220)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.198	0.061*	0.380
P-value: $\beta_{TT} = \beta_{TTVA}$	0.898	0.861	0.426
Sample size	438	250	235

Notes: The unit of observation is the teacher. Dependent variable may take the values "Never," "Sometimes (less than once per week)," and "Often (one or more times per week)." Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each ordered probit regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A32. Estimated ITT impacts of SSDP training on whether teacher ever collects information from local residents for use in class or homework (as assessed by head teacher)

	Math and Science	Math only	Science only
Combined effect	0.041	0.083	-0.155
Treat	(0.174)	(0.221)	(0.225)
Separate effects			
TT	0.084	0.142	-0.180
	(0.209)	(0.276)	(0.272)
TTVA	0.000	0.030	-0.133
	(0.209)	(0.249)	(0.268)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.912	0.873	0.778
P-value: $\beta_{TT} = \beta_{TTVA}$	0.721	0.694	0.876
Sample size	400	219	188

Notes: The unit of observation is the teacher. Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each probit regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively. Note that the probit regressions in the first column are based on 400 observations, not 422 observations as reported in Table 13, because adjusting the standard errors for stratification drops 22 strata that have only one observation.

Table A33. Estimated ITT impacts of SSDP training on teacher's frequency of requiring students to work in small groups during class (as assessed by head teacher)

	Math and Science	Math only	Science only
Combined effect			
Treat	0.245*	0.318*	0.281
	(0.138)	(0.172)	(0.207)
Separate effects			
TT	0.194	0.259	0.156
	(0.174)	(0.209)	(0.240)
TTVA	0.293	0.369	0.396*
	(0.174)	(0.228)	(0.238)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.197	0.187	0.252
P-value: $\beta_{TT} = \beta_{TTVA}$	0.637	0.684	0.322
Sample size	441	250	239

Notes: The unit of observation is the teacher. The dependent variable may take the values "Never," "Sometimes (less than once per week)," or "Often (one or more times per week)." Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each ordered probit regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A34. Estimated ITT impacts of SSDP training on whether teacher ever requires students to work on longer term projects (as assessed by head teacher)

	Math and Science	Math only	Science only
Combined effect			
Treat	0.363**	0.372*	0.323
	(0.145)	(0.218)	(0.200)
Separate effects			
TT	0.171	0.303	-0.102
	(0.189)	(0.274)	(0.252)
TTVA	0.545***	0.436*	0.761***
	(0.176)	(0.257)	(0.258)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.010***	0.209	0.006***
P-value: $\beta_{TT} = \beta_{TTVA}$	0.094*	0.664	0.005***
Sample size	415	201	212

Notes: The unit of observation is the teacher. Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each probit regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively. Note that the probit regressions in the first column are based on 415 observations, not 439 observations as reported in Table 13, because adjusting the standard errors for stratification drops 24 strata that have only one observation.

Table A35. Estimated ITT impacts of SSDP training on minutes of preparation per class session (teacher self report)

	Math and Science	Math only	Science only
Combined effect			
Treat	-2.283	-3.585	-1.541
	(2.843)	(2.543)	(4.322)
R^2	0.176	0.242	0.222
Separate effects			
TT	-5.534	-5.652*	-6.310
	(3.664)	(2.986)	(5.380)
TTVA	0.866	-1.581	2.556
	(2.921)	(2.821)	(4.831)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.190	0.155	0.283
P-value: $\beta_{TT} = \beta_{TTVA}$	0.075*	0.159	0.116
R^2	0.182	0.246	0.231
Sample size	401	228	222

Notes: The unit of observation is the teacher. Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each WLS regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A36. Estimated ITT impacts of SSDP training on whether teacher uses written lesson plans (teacher self report)

	Math and Science	Math only	Science only
Combined effect			
Treat	-0.365	-0.406	-0.166
	(0.221)	(0.309)	(0.320)
Separate effects			
TT	-0.280	-0.211	-0.108
	(0.250)	(0.361)	(0.391)
TTVA	-0.452	-0.598	-0.226
	(0.280)	(0.365)	(0.398)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.240	0.270	0.850
P-value: $\beta_{TT} = \beta_{TTVA}$	0.564	0.330	0.798
Sample size	306	139	105

Notes: The unit of observation is the teacher. Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each probit regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Lack of variation within some strata caused 95 observations to be dropped. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively. Note that the probit regressions in the first column are based on only 306 observations, not 401 observations as reported in Table 13, because adjusting the standard errors for stratification drops 95 strata that have only one observation.

Table A37. Estimated ITT impacts of SSDP training on teachers' frequency of requiring students to work in small groups (teacher self report)

	Math and Science	Math only	Science only
Combined effect			
Treat	0.007	0.060	0.113
	(0.120)	(0.159)	(0.162)
Separate effects			
TT	-0.116	-0.061	-0.013
	(0.144)	(0.184)	(0.183)
TTVA	0.130	0.184	0.226
	(0.156)	(0.203)	(0.209)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.383	0.518	0.489
P-value: $\beta_{TT} = \beta_{TTVA}$	0.166	0.264	0.276
Sample size	401	228	222

Notes: The unit of observation is the teacher. Dependent variable may take the values "Never," "Less than once a week, "Once a week," and "Two or more times a week." Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each ordered probit regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A38. Estimated ITT impacts of SSDP training on teacher's frequency of using classroom examples or homework involving local measurement (teacher self report)

	Math and Science	Math only	Science only
Combined effect			
Treat	-0.082	-0.188	-0.037
	(0.115)	(0.158)	(0.158)
Separate effects			
TT	-0.137	-0.305*	-0.011
	(0.155)	(0.187)	(0.204)
TTVA	-0.028	-0.078	-0.061
	(0.143)	(0.200)	(0.190)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.678	0.266	0.950
P-value: $\beta_{TT} = \beta_{TTVA}$	0.563	0.313	0.831
Sample size	401	228	222

Notes: The unit of observation is the teacher. Dependent variable may take the values "Less than once a month or never," "Once a month," "Less than once a week but more than once a month," "Once a week," or "Two or more times a week." Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each ordered probit regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.

Table A39. Estimated ITT impacts of SSDP training on frequency of requiring students to collect local information (teacher self report)

	Math and Science	Math only	Science only
Combined effect			
Treat	0.076	-0.137	0.338*
	(0.131)	(0.175)	(0.197)
Separate effects			
TT	0.084	-0.166	0.573**
	(0.157)	(0.206)	(0.231)
TTVA	0.069	-0.108	0.149
	(0.152)	(0.210)	(0.217)
P-value: $\beta_{TT} = \beta_{TTVA} = 0$	0.842	0.710	0.038**
P-value: $\beta_{TT} = \beta_{TTVA}$	0.929	0.797	0.051*
Sample size	401	228	222

Notes: The unit of observation is the teacher. Dependent variable may take the values "Never," "Less than once a month," "Less than once a week but more than once a month," and "Once a week or more." Standard errors are adjusted for random assignment within strata (district by school priority status) and are clustered at the school level. Each ordered probit regression also employs population weights and includes strata dummy variables. School-level population weights are explained in Appendix D. Estimates that are statistically significant at the .10, .05 and .01 levels are indicated by *, ** and ***, respectively.