## [Taleemabad Evaluation by CERP Analytics](#taleemabad-evaluation-by-cerp-analytics)

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### [1. Basic Introduction](#1-basic-introduction)

### [2. Summary of results produced by Taleemabad](#2-summary-of-results-produced-by-taleemabad)

* 2.1. Grades 1-3:

50.7% of all Taleemabad students meet the criteria for all 3 subjects compared to 29.4% of control students at endline. This represents a difference of 0.46 standard deviations compared to the control group (1.58 LAYS). During baseline, the difference between Taleemabad and control students is statistically insignificant from zero for English and Mathematics. For Urdu, however, the difference was -13.6% between Taleemabad and control. At the endline, the difference between Taleemabad and control schools rises to 22.9% for English and 14.6% for Urdu (both significant at 5% level). For Mathematics, however, the difference is -2.9% (i.e. in favor of control schools, significant at 5% level).

* 2.2. Grades 4-5:

7.2% of all Taleemabad students meet the criteria for all 3 subjects compared to 6.2% of control students at endline. This represents a difference of 0.05 standard deviations compared to the control group (0.4 LAYS). During baseline, the difference between Taleemabad and control students is statistically insignificant from zero for English and Mathematics. For Urdu, however, the difference was -8.7% between Taleemabad and control, meaning that control schools were at a higher level than intervention schools. At the endline, the difference between Taleemabad and control schools rises to 3.6% for English, 1.5% for Mathematics and 2.2% for Urdu (all significant at 5% level).

* 2.3. MELQO:

At baseline, Taleemabad schools outperformed control schools by ~6 percent of overall score in pre-numeracy but lagged behind control schools in pre-literacy and motor skills by 0.35% and 1.58% respectively. At the endline, the difference between Taleemabad and control schools reduced to ~4% in pre-numeracy whereas Taleemabad schools performed better than control schools in pre-literacy and motor skills by 1.6% and 3.4% respectively. These results are statistically significant at the 5% level.

### [3. Analytics by CERP:](#3-analytics-by-cerp)

### [4. Sampling Methodology: Power and standard errors:](#4-sampling-methodology-power-and-standard-errors)

### [5. Balance Tests (ASER, TEACH MELQO):](#5-balance-tests-aser-teach-melqo)

* 5.1. Attrition: Table
* 5.2. Balance Test(s): Tables: 1 for learning outcome vars and other relevant variables

### [6. Results replications (diff-in-diff) regression at school level to measure treatment effect. (ASER, TEACH MELQO)](#6-results-replications-diff-in-diff-regression-at-school-level-to-measure-treatment-effect-aser-teach-melqo)

### [7. Other analysis avenues/data visualization(s) to be explored:](#7-other-analysis-avenuesdata-visualizations-to-be-explored)

* Looking at the frequency of schools that were in baseline and endline (Consistent), schools which were only in baseline (Attrition) and schools which were only in endline (Replacement).

matching | Freq. Percent Cum.

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Attrition | 11 12.09 12.09

Replacement | 38 41.76 53.85

Consistent | 42 46.15 100.00

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Total | 91 100.00

| matching

treatment | Attrition Replaceme Consisten | Total

----------------------+---------------------------------+----------

Treatment in both end | 0 0 21 | 21

Control in both endli | 0 0 18 | 18

Treatment in baseline | 0 0 3 | 3

Attrition: Treatment | 6 0 0 | 6

Attrition: Control in | 5 0 0 | 5

Replacement: Treatmen | 0 5 0 | 5

Replacement: Control | 0 33 0 | 33

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Total | 11 38 42 | 91

* Balance checks

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aser\_b\_english\_Nothing:mean 3.511 1.379

aser\_b\_english\_Capital:mean 2.531 2.812

aser\_b\_english\_Small:mean 39.120 20.330

aser\_b\_english\_Word:mean 35.773 28.924

aser\_b\_english\_Sentence:mean 19.066 46.555

aser\_b\_math\_Nothing:mean 1.290 0.099

aser\_b\_math\_NumRecog1\_9:mean 1.157 0.728

aser\_b\_math\_NumRecog10\_99:mean 5.241 4.820

aser\_b\_math\_Subtract:mean 29.421 28.211

aser\_b\_math\_Division:mean 26.076 42.005

aser\_b\_math\_NumRecog100\_200:mean 36.814 24.137

aser\_b\_urdu\_Nothing:mean 33.403 16.250

aser\_b\_urdu\_Letters:mean 11.542 15.197

aser\_b\_urdu\_Paragraph:mean 30.887 25.551

aser\_b\_urdu\_Story:mean 5.640 22.851

aser\_b\_urdu\_Words:mean 18.529 20.151

aser\_b\_eng\_4\_5\_Nothing:mean 7.133 2.857

aser\_b\_eng\_4\_5\_Capital:mean 1.071 0.952

aser\_b\_eng\_4\_5\_Small:mean 2.628 1.726

aser\_b\_eng\_4\_5\_Word:mean 1.378 0.759

aser\_b\_eng\_4\_5\_G2Sentence:mean 46.909 32.932

aser\_b\_eng\_4\_5\_G5Sentence:mean 5.488 6.738

aser\_b\_eng\_4\_5\_G5Story:mean 35.392 54.035

aser\_b\_maths\_4\_5\_Nothing:mean 1.644 0.370

aser\_b\_maths\_4\_5\_NumberRecog:mean 56.999 30.816

aser\_b\_maths\_4\_5\_Subtract45:mean 12.732 15.783

aser\_b\_maths\_4\_5\_Division:mean 28.625 53.031

aser\_b\_urdu\_4\_5\_Nothing:mean 22.500 12.356

aser\_b\_urdu\_4\_5\_Letters:mean 3.184 3.429

aser\_b\_urdu\_4\_5\_Words:mean 9.512 10.497

aser\_b\_urdu\_4\_5\_G2Sentence:mean 2.456 1.425

aser\_b\_urdu\_4\_5\_G2Story:mean 1.831 2.413

aser\_b\_urdu\_4\_5\_G5Story:mean 60.517 69.879

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aser\_e\_english\_Nothing:mean 20.841 5.772

aser\_e\_english\_Capital:mean 20.143 16.375

aser\_e\_english\_Small:mean 17.950 14.070

aser\_e\_english\_Word:mean 28.191 36.402

aser\_e\_english\_Sentence:mean 12.875 27.381

aser\_e\_math\_Nothing:mean 5.998 1.993

aser\_e\_math\_NumRecog1\_9:mean 1.022 0.250

aser\_e\_math\_NumRecog10\_99:mean 2.315 0.930

aser\_e\_math\_Subtract:mean 27.125 26.009

aser\_e\_math\_Division:mean 49.039 56.776

aser\_e\_math\_NumRecog100\_200:mean 14.501 14.041

aser\_e\_urdu\_Nothing:mean 39.582 32.039

aser\_e\_urdu\_Letters:mean 9.400 3.650

aser\_e\_urdu\_Paragraph:mean 19.667 24.433

aser\_e\_urdu\_Story:mean 14.226 22.512

aser\_e\_urdu\_Words:mean 17.124 17.367

aser\_e\_eng\_4\_5\_Nothing:mean 1.235 0.000

aser\_e\_eng\_4\_5\_Small:mean 2.285 0.719

aser\_e\_eng\_4\_5\_Word:mean 0.964 0.000

aser\_e\_eng\_4\_5\_G2Sentence:mean 53.706 36.521

aser\_e\_eng\_4\_5\_G5Sentence:mean 8.976 14.871

aser\_e\_eng\_4\_5\_G5Story:mean 32.834 47.888

aser\_e\_maths\_4\_5\_Nothing:mean 2.992 1.053

aser\_e\_maths\_4\_5\_NumberRecog:mean 21.271 26.047

aser\_e\_maths\_4\_5\_Subtract45:mean 15.805 10.771

aser\_e\_maths\_4\_5\_Division:mean 59.932 62.129

aser\_e\_urdu\_4\_5\_Nothing:mean 12.845 8.855

aser\_e\_urdu\_4\_5\_Letters:mean 7.464 3.039

aser\_e\_urdu\_4\_5\_Words:mean 13.398 7.921

aser\_e\_urdu\_4\_5\_G2Sentence:mean 3.330 2.459

aser\_e\_urdu\_4\_5\_G2Story:mean 5.918 9.152

aser\_e\_urdu\_4\_5\_G5Story:mean 57.044 68.574

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melqo\_b\_ev\_edible\_num\_per:mean 31.216 35.431

melqo\_b\_ev\_animal\_num\_per:mean 26.719 31.474

melqo\_b\_pl\_let\_identify\_per:mean 71.115 67.940

melqo\_b\_pl\_let\_sound\_per:mean 39.743 48.802

melqo\_b\_listcomp\_story\_per:mean 53.538 62.077

melqo\_b\_name\_writing\_per:mean 47.543 54.333

melqo\_b\_pn\_verbal\_count\_per:mean 67.437 70.140

melqo\_b\_pn\_num\_identify\_per:mean 59.229 61.795

melqo\_b\_ms\_shape1\_per:mean 66.980 76.057

melqo\_b\_ms\_shape2\_per:mean 74.382 71.204

melqo\_b\_ms\_shape3\_per:mean 52.992 61.790

sd\_melqo\_b\_ev\_edible\_num\_per:mean 11.174 11.785

sd\_melqo\_b\_ev\_animal\_num\_per:mean 10.494 13.545

sd\_melqo\_b\_pl\_let\_identify\_per:mean 17.677 22.226

sd\_melqo\_b\_pl\_let\_sound\_per:mean 18.874 23.173

sd\_melqo\_b\_listcomp\_story\_per:mean 17.459 18.700

sd\_melqo\_b\_name\_writing\_per:mean 38.089 42.816

sd\_melqo\_b\_pn\_verbal\_count\_per:mean 20.331 24.009

sd\_melqo\_b\_pn\_num\_identify\_per:mean 20.084 22.265

sd\_melqo\_b\_ms\_shape1\_per:mean 23.407 28.354

sd\_melqo\_b\_ms\_shape2\_per:mean 26.385 30.061

sd\_melqo\_b\_ms\_shape3\_per:mean 34.803 34.030

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melqo\_e\_ev\_edible\_num\_per:mean 32.609 34.611

melqo\_e\_ev\_animal\_num\_per:mean 29.548 29.929

melqo\_e\_pl\_let\_identify\_per:mean 68.780 67.020

melqo\_e\_pl\_let\_sound\_per:mean 44.696 50.038

melqo\_e\_listcomp\_story\_per:mean 62.046 60.109

melqo\_e\_name\_writing\_per:mean 57.647 52.822

melqo\_e\_pn\_verbal\_count\_per:mean 64.976 66.150

melqo\_e\_pn\_num\_identify\_per:mean 55.711 57.308

melqo\_e\_ms\_shape1\_per:mean 71.391 78.178

melqo\_e\_ms\_shape2\_per:mean 65.613 71.209

melqo\_e\_ms\_shape3\_per:mean 54.284 62.485

sd\_melqo\_e\_ev\_edible\_num\_per:mean 11.248 13.366

sd\_melqo\_e\_ev\_animal\_num\_per:mean 10.998 13.976

sd\_melqo\_e\_pl\_let\_identify\_per:mean 17.926 23.671

sd\_melqo\_e\_pl\_let\_sound\_per:mean 20.694 22.636

sd\_melqo\_e\_listcomp\_story\_per:mean 18.885 22.807

sd\_melqo\_e\_name\_writing\_per:mean 40.226 41.011

sd\_melqo\_e\_pn\_verbal\_count\_per:mean 22.731 23.773

sd\_melqo\_e\_pn\_num\_identify\_per:mean 20.423 22.310

sd\_melqo\_e\_ms\_shape1\_per:mean 31.958 29.119

sd\_melqo\_e\_ms\_shape2\_per:mean 33.858 31.273

sd\_melqo\_e\_ms\_shape3\_per:mean 37.783 37.020