

Supplementary Materials for:

Schoen, R. C., LaVenía, M., Chicken, E., Razzouk, R., & Kisa, Z. (2019). Increasing secondary-level teachers' knowledge in statistics and probability: Results from a randomized controlled trial of a professional development program. *Cogent Education OA*.
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Randomization Procedure

Random assignment was conducted in an initial round, plus rolling assignment to maintain the target of 83 treatment teachers. The first round of assignment was conducted in early April 2014 with 159 eligible applicants. The random assignment procedure for the first round blocked on school district—or for districts that were members of one of two participating educational consortia, the assignment procedure blocked on consortia. The number of participants assigned to treatment from each district/consortium was based on the proportion of number-of-institute-seats to number-of-eligible-applicants at that time.

With 159 eligible applicants at the first round of assignment, 83 institute seats allowed for 0.52 proportional assignment within each district/consortium. In instances where an odd number of applicants was present for a district/consortium, a random number was generated to make the determination of rounding up or down to exceed or fall below the proportion target for a given district/consortium. We used the Microsoft Excel RANDBETWEEN function to generate random numbers. Each participant was assigned a random number (Participant-RN). A second random number was generated for each block (Block-RN).

For blocks with an even number of members, the half of the participants within each block with the lowest Participant-RNs was assigned to treatment, the others to control. For blocks with an odd number of members, blocks with odd Block-RNs rounded up, blocks with even Block-RNs rounded down, and participants were assigned to treatment or control according their sorting by the Participant-RN. For single-participant assignment, participants with odd Participant-RNs were assigned to treatment and participants with even Participant-RNs were assigned to control.

Table S2 provides an example application of the decision rule for the first round of block randomization.

- District/Consortium A had four participants. Accordingly, the decision rule was for the participants to be evenly divided between conditions, with the two with the lowest Participant-RNs being assigned to treatment.
- District/Consortium B had nine participants. As an odd number, the Block-RN was referenced to determine whether four (0.44 of the participants; a proportion below the target) or five (.56; a proportion above the target) of the participants would be assigned to treatment. With a Block-RN of 2 (an even number), the decision rule was to round down and assign the four with the lowest Participant-RNs to treatment.
- District/Consortium C had five participants. As an odd number, the Block-RN was referenced to determine whether two (0.40 of the participants; a proportion below the target) or three (.60; a proportion above the target) of the participants would be assigned to treatment. With a Block-RN

of 1 (an odd number), the decision rule was to round up and assign the three with the lowest Participant-RNs to treatment.

- District/Consortium D had one participant. Accordingly, we reference the Participant-RN to determine assigned condition. With a Participant-RN of 1761 (an odd number), the decision rule was to assign the participant to treatment.

Table S2

Example Application of Decision Rule for Round 1 Block Randomization.

Participant _ID	District/ Consortium	Block- RN	Participant- RN	Block_ Size	Block _Size_ Tx	Proportion _Tx	Assigned_ Condition
001	A	—	6422	4	2	0.50	Treatment
002	A	—	43888	4	2	0.50	Treatment
003	A	—	63515	4	2	0.50	Control
004	A	—	75473	4	2	0.50	Control
005	B	2	2508	9	4	0.44	Treatment
006	B	2	18760	9	4	0.44	Treatment
007	B	2	46566	9	4	0.44	Treatment
008	B	2	47221	9	4	0.44	Treatment
009	B	2	69374	9	4	0.44	Control
010	B	2	80096	9	4	0.44	Control
011	B	2	81123	9	4	0.44	Control
012	B	2	88499	9	4	0.44	Control
013	B	2	93771	9	4	0.44	Control
014	C	1	5401	5	3	0.60	Treatment
015	C	1	10115	5	3	0.60	Treatment
016	C	1	18900	5	3	0.60	Treatment
017	C	1	37590	5	3	0.60	Control
018	C	1	71333	5	3	0.60	Control
019	D	—	1761	1	1	1.00	Treatment

Note. Block-RN = Block random number. Participant-RN = Participant random number.

Block_Size = Number of participants in block for Round 1 randomization. Dashes “—” are inserted for Block-RNs when the Block-RN was not used in the decision rule for assignment.

After the first round of assignment, subsequent applicants determined to be eligible for assignment were added to a waitlist. Prior to the commencement of institute, 11 treatment participants from the first round of assignment gave notice of their inability to attend. For the rolling assignment, applicants were selected at random from the waitlist in pairs: one participant was randomly assigned to treatment, the other control. Moreover, for rolling assignment each randomly selected pair constituted a randomization block. This procedure was conducted for 10 pairs of late-applicants. There was one remaining applicant who was assigned using the single-participant method used in the first round.