Do you think implementation “matters” and wish you knew how to demonstrate its importance? Learn about ASPES!

**Abstract**: The phrase “implementation matters'' is often used by evaluators. In the context of educational programs, this phrase means that (1) teachers in charge of delivery will differ in how much (i.e., dosage) and how well (i.e., quality) they implement a program, and (2) students exposed to more and better delivery will be more likely to benefit than their peers who are exposed to less and poorer delivery of a program. The main issue for evaluators is that there are few available analytical strategies to demonstrate that implementation indeed matters. Have you found yourself wondering how to demonstrate that implementation matters for student outcomes? If so, ASPES (Analysis of Symmetrically-Predicted Endogenous Subgroups) is here to help. ASPES is a method to leverage data from randomized experiments to estimate the effects of programs when implemented at high vs. low quality.

Evaluators working on randomized experiments of educational programs experience a common issue in their daily work: Events or behaviors that occur after randomization can influence the extent to which students benefit from educational programs. These events or behaviors are captured by differences in dosage, quality of delivery, and student engagement across teachers, schools, and other entities in charge of implementation. Several studies have shown that variation in dosage, quality of delivery, and student engagement is a common occurrence in educational programs (e.g., Durlak & DuPre, 2008; Low, Smolkowski, & Cook, 2016). In addition, an emerging body of literature suggests that such variation explains the circumstances under which students benefit from educational programs (e.g., Zvoch, 2012). Thus, evaluators need to add strategies to their toolbox that allow them to test the extent to which student outcomes vary depending on implementation quality. However, the field lacks widespread training opportunities for evaluators on this issue. This skill-building workshop focuses on the Analysis of Symmetrically Predicted Endogenous Subgroups (ASPES) method (Peck, 2013), which offers a framework to estimate the variation in causal effects  due to continuous post-randomization events or behaviors.

To learn how to use ASPES, evaluators first need to learn two basic intuitions that support the method. The first intuition is that randomized experiments are a tool to imagine multiple possible worlds: A world in which a student participates in a program and a world in which the same student is exposed to regular instruction. The second intuition is that delivering a program at high or low quality depends on school and teacher characteristics that existed before they are randomized to treatment or control conditions. That is, high vs low quality of delivery may be *predicted* from participants’ baseline data. Based on these two intuitions, evaluators can leverage data from randomized experiments to *imagine the levels of implementation quality that control participants would have shown had they been assigned to the treatment group.*

ASPES brings these imagined multiple worlds (i.e., counterfactuals) to life in two stages. In stage 1, the patterns of association between baseline data and implementation quality in the treatment group are used to predict the levels of implementation quality participants in the treatment group *would have shown had they been assigned to the treatment group*. That is, evaluators make an “informed guess” about the missing implementation data in the control group. However, using guesses for the control group and real data for the treatment group could result in unfair comparisons. Therefore, in the process of predicting implementation data, ASPES makes equally good or bad guesses for control and treatment participants. In stage 2, this predicted implementation quality data is used to estimate the causal effects of delivering programs at high vs low implementation quality.

Do you wish you could show the causal effects of implementation quality in your own projects? Would you want to learn more about ASPES and how to apply it to your own projects? The following resources will help you kickstart your learning journey: Visit The ASPES Learning Portal (<http://aspes.abtsites.com/>) to access readings, presentations, a user guide, and STATA code (visit <https://osf.io/7uky5/> for R code that reproduces the STATA code in the Learning Portal).

**References**

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Low, S., Smolkowski, K., & Cook, C. (2016). What Constitutes High-Quality Implementation of SEL Programs? A Latent Class Analysis of Second Step Implementation. *Prevention Science, 17*(8), 981–991.

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