

Conference: Society for Research on Educational Effectiveness (SREE)

Dates: March 6-9, 2019

Location: Washington, D.C.

Authors: Angela Henneberger, Yi Feng, Tessa Johnson, Yating Zheng, Bess Rose, Laura Stapleton, Tracy Sweet, & Michael Woolley

Title: Estimating Attrition in School-Based Evaluation Studies: Guidance from State Longitudinal Data in Maryland

School-based evaluation studies often take the form of randomized controlled trials (RCTs) to limit selection bias between treatment and control groups. Estimating the power to detect a sizeable effect is critical for the planning and proper implementation of RCTs. Prior research indicates that studies funded by the National Center for Education Research (NCER) tend to underestimate the minimum detectable standardized effect size (MDES), indicating a mismatch between estimated power and precision and actual power and precision after carrying out the trial (Spybrook & Raudenbush, 2009). Attrition from study populations represents a serious threat to study validity and limits the ability to detect effects in school-based research. Furthermore, attrition is typically not random, further threatening the validity of school-based studies. A recent review of 132 evaluation studies with student-, teacher-, or school-level random assignment reported that the median attrition rate was 24% (Rickles, Zeiser, & West, 2019). The purpose of this study is to use statewide longitudinal administratively collected data from the population of Maryland students attending public middle and secondary schools and public and private postsecondary institutions to provide estimates of student attrition (1) over time; (2) over grade level; (3) for specific student subgroups; and (4) for specific types of schools.

Data from Maryland public middle and high school students were used in academic years 2009-2010 through 2015-2016 to examine the number and percentage of the total population for each cohort in each grade who attrite from a school or district and the number who leave the State. Rates were also examined by student poverty status and by school characteristics. Data from the 2013-2014 cohort of Maryland postsecondary students, including community college students, 4-year public students, and 4-year private students, were used to examine the number and percentage of the total population who attrite from a postsecondary institution, leave the State, and leave college altogether.

Data were from the Maryland Longitudinal Data System (MLDS), which contains linked longitudinal data from three State agencies: (1) the Maryland State Department of Education (MSDE) provides data for public preK-12 students and schools; (2) the Maryland Higher Education Commission (MHEC) provides data for Maryland public and private college students and colleges; and (3) the Department of Labor Licensing and Regulation (DLLR) provides data for Maryland residents employed by employers who are subject to Maryland's unemployment insurance. Data for Maryland 12th grade students who enroll in college out-of-state are received from the National Student Clearinghouse (NSC). Student poverty was measured using students' eligibility for free and reduced price meals (FARMS; yes/no).

Of the cohort of students who were in 6th grade in 2014-2015, 22% had attrited from their first school attended, and 9% had left the State, by the end of the 2016-2017 school year. Of the 2013-2014 9th grade cohort, 17% had attrited from their first school attended by the end of the 2016-2017 school year. Student attrition rates were largely consistent across cohorts. Students who were eligible for FARMS had higher attrition rates when compared to students who were not eligible for FARMS.

Of the cohort of first-time undergraduate students who began community college in Maryland in 2013-2014, 45% were no longer enrolled at the same college one year later (33% were not enrolled in any college; 10% had transferred to another college in Maryland; and 2% to college in another state). For 4-year public postsecondary institutions, 27% were no longer enrolled at the same college one year later, 34% two years later, and 38% three years later. For 4-year private postsecondary institutions these rates were 20%, 27%, and 30%, respectively.

Our results indicate that student attrition rates in public middle and high schools and postsecondary institutions are relatively high. Loss of students due to attrition represents a critical threat to an educational evaluation's validity and reliability. Additional analyses will predict which students are most likely to attrite in middle school, high school, and college in order to inform educational researchers about the populations of students that may need to be oversampled when planning RCTs. Implications for the use of school, district, statewide, and postsecondary administrative data will be discussed.