

Research Plan

Research Questions:

1. Which site-, teacher-, and student-level factors emerge as most predictive of retention rates and learner gains in adult education sites across the state of Georgia?
2. Do these site-, teacher-, and student-level factors interact with each other to influence retention and learner gains in adult education sites across the state of Georgia?
3. Can we qualitatively define “higher” and “lower” performance sites based on site-, teacher-, and student-level predictors of retention and learner gains identified from our quantitative analyses?

Our research study involves both quantitative and qualitative methods. We are currently involved in the quantitative aspects of our design and will briefly describe them below. As we move into the qualitative aspects, we will update this document to reflect our qualitative methods.

Quantitative Research Design:

Our outcome measures will be indicators of student success (retention and learner gains).

Once the data have been cleansed, recoded, and merged into a new dataset, we envision that the data will be examined using hierarchical linear modeling (HLM) with 4 outcome variables (representing retention and learner gains) and 18 predictor variables that reflect the site (level 3), teachers (level 2), and students (level 1). We anticipate some cross-level and within-level interactions among our variables. For instance, class size (identified as a teacher-level predictor) may interact with some of the site-level predictors (e.g., frequency of course offerings, type of class site) and/or teacher-level predictors (e.g., teachers’ years of experience).

HLMs consider nested data structures and predictors and interactions at varying levels. Given our large power at our largest cluster ($N= 291$ sites), we will consider 3-levels of nesting in our HLMs and assess the predictor contributions and the interactions at different levels on the outcome variables. Though the outcome variables will be examined related to the predictors at all levels, the level 3 (site) characteristics are of primary interest to GOAE. To the extent that level 1 or 2 variables inform malleable factors at the site-, teacher-, and/or student levels, or in the event that individual level interaction may influence policy or practice, those factors will also be considered. This analysis will be iterative in nature and examine different models incorporating data from the three different levels.

HLM allows the inclusion of multiple outcome variables to examine the influence of the predictor variables and level interactions on the multivariate outcome. Within the analysis, both fixed (e.g., individual differences variables at level 1 student factors) and random effects (e.g., site-level factors) will be examined to determine the appropriate interpretation of the results.

Predictor variables are comprised of dichotomous, ordinal, and continuous variables and are organized with 7 level 3 predictors (site), 4 level 2 predictors (teacher), and 7 level 1 predictors (student). The numbers of teachers and students are not balanced across the 291 sites and will range from 5 to 25 teachers per site and from 10 to 1,500 students per site. The assumptions for HLM of a linear relationship at each level and a normal distribution of residuals at level 1 and multivariate normal distributions at levels 2 and 3 will be evaluated once data are collected, as well as assumptions regarding homoscedasticity and independence of observations. In this manner, ALRC plans to help GOAE identify the most influential predictors of retention and learner gains in their ABE/ASE programs.

Since our learner gains data analysis relies on pre/post-test performance and the fact that in adult literacy programs, there are high adult literacy attrition rates (e.g., Alamprese, et al., 2011; Greenberg et al., 2011; Sabatini, et al., 2011), we will conduct a missing data analysis to analyze whether post-test data are missing completely at random. Consistent with past research citing high attrition rates in intervention pre/post-test work, we anticipate that attrition will not be a factor of our outcome variable, learner gains. We will also assess whether there are pre-test literacy skill differences between those who were post-tested and those who were not when conducting our individual differences analyses on learner gains.