WASHINGTON STATE UNIVERSITY EXTENSION

No School Alone 2018

Community Characteristics, Academic Success, and Youth Wellbeing

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CHILD & FAMILY RESEARCH UNIT
CAFRU

The Child and Family Research Unit works with community systems to address the public health challenge of adverse childhood experiences (ACEs) and resulting trauma. Specifically, CAFRU has developed an extensive body of works addressing these public health consequences through several systems-change efforts.

Since 2008, CAFRU faculty and staff have delivered complex trauma training to more than 30,000 professionals, including those in the K-12 education system, early learning, juvenile justice, social work, mental health, primary health care, and communities across Washington, Oregon, Alaska, and California.

Executive Summary.

This report is part of a series of studies addressing the potential effects that community differences have on academic success and youth wellbeing. The companion reports are the *No School Alone* study released in 2015 and the *Every Child School Ready* report addressing school differences in kindergarten readiness released in early 2018. In this report, we update the original *No School Alone* report with school performance data through the 2016-2017 school year. In addition to updating the initial *No School Alone* report, changes in the data systems maintained by Washington State's Office of the Superintendent of Public Instruction (OSPI) permitted an examination of school performance differences for specific populations of Washington students. While only the results for the 2016-2017 school year are presented, we confirmed these findings also describe school differences in the 2014-2015 and the 2015-2016 school years.

Key findings from this report include the following:

1. Confirms the finding that differences in school academic success and youth wellbeing are highly associated with a variety of specific community risk and protective factors.
2. Confirms the results from the two companion studies that the specific risk and protective factors are in turn explained to a significant degree by (a) the level of poverty in a school's student population and (b) the percent of adults in a school's community who report growing up with three or more adverse childhood experiences (ACEs).
3. Confirms the finding that school poverty and levels of community adult ACEs are predictive of academic success based on standardized test results. Adding specific risk and protective factors did not increase our ability to predict differences across schools above the explanatory power of poverty and ACEs.
4. Demonstrated that the following additional measures of academic success reflected greater academic problems as poverty and/or community ACEs increased.
    a. Washington State's rolling three-year Educational Achievement Index which incorporates multiple indicators of academic success in a single measure.
    b. Washington State's Growth Index which provides a measure of progress toward state performance standards. This measure is often used as an index of interim progress as schools adopt academic improvement plans.
    c. Graduation rates.
    d. Unexcused absence rates.
5. Washington's increasing diversity needs to be accounted for in understanding school performance differences. We confirmed that Hispanic ethnicity and English Language Learner (ELL) enrollment in schools must be accounted for to understand academic success and youth wellbeing. On academic measures, increasing Hispanic and ELL enrollment are associated with lower levels of academic success. However, Hispanic ethnicity may be associated with lower levels of ACEs exposure and may be protective for some residents in terms of the risk associated with ACEs.
6. We confirmed that the type of community (urban, suburban, town, rural) a school serves is an influence on academic outcomes, levels of poverty, and levels of adult ACEs in communities. It is likely that these differences reflect school-specific resources, student demographic differences, and access to community services.
7. OSPI's reporting of academic results expanded in recent years to provide group results for several specific student groups. Assessing academic progress in these specific

populations allowed us to address some limitations when examining progress in all students as was the case in the original *No School Alone* report. Specifically, as we examined progress across schools, enrollment differences (ethnicity enrollment, ELL enrollment, poverty levels, special education enrollment) were all related to our academic measures and our principal predictors of school poverty and community ACEs. Examining academic progress within sub-groups of students allowed for some ability to clarify the effects of school poverty and community ACEs. For example, testing among White students demonstrated a stronger ACE effect across all levels of poverty in schools in part because the experience of Hispanic and most ELL students were not included in the analyses. Similarly, when we restricted our analyses to Hispanic students, poverty but not community ACEs were the principal predictors of academic success. These findings both support the utility of poverty and ACEs as explanatory tools while underscoring that the predictive power of these tools varies across populations.

We conclude that as critical as school-centered improvement efforts are, the impact of community characteristics need to be addressed in a coordinated response. Efforts to address poverty are at least indirectly school improvement strategies. The evidence suggests that efforts to raise incomes through economic policies when combined with investments to improve access to cultural, social and health, and recreational services can mitigate known negative social effects of poverty. Broad community awareness of ACEs and their effects is rapidly expanding, and consensus principles can guide emerging practices to improve educational outcomes through understanding the effects of adversity and how to support greater resilience in affected students. In schools, efforts to equip educators with the skills to recognize and respond to the effects of ACEs are not systematic and largely reflects a mix of local initiatives and advocacy efforts. Currently, most teacher preparation programs do not systematically integrate knowledge of adversity and its effects in core practice courses. Policy makers may wish to consider minimum professional expectations to accelerate adoption of understanding adversity and trauma in educational practice. While state policy can support planning structures and incentivize local efforts, how to develop responses suited to individual communities are distinctly local discussions given the range of resources and challenges defining communities.

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Introduction.

This study updates a previous report, *No School Alone* (Blodgett, 2015), that documented the influence of community factors on academic success and youth wellbeing. Released in 2015, *No School Alone* examined community differences in K-12 academic success through the 2012-13 school year. The present report uses the same analysis approach but updates the analysis through the end of the 2016-2017 school year. Particularly, this report uses three years of data under the Smarter Balanced/Common Core state academic assessment system. A related report, *Every Child School Ready* (Blodgett & Houghten, 2018), confirmed the importance of community and school risk and protective factors as influences on Kindergarten readiness and early school success.

Two key findings were reported in these previous reports. First, a wide range of factors including safety, physical and emotional health, economic success, and social connectedness contribute to success or challenges during childhood. Second, the impact of these varied community factors is effectively described using two community conditions: the level of poverty in the school community and the degree to which adults in the community report exposure to multiple forms of early life adversity (adverse childhood experiences). We briefly review these findings, but readers may wish to read either of the previous reports where these results were presented in detail.

Poverty, Adverse Childhood Experiences, and why where we live matters.

Research on how place effects health and life success has principally focused on two major influences singly or in combination: socioeconomic status and the impact of concentrating race and ethnicity groups in specific communities. In the present report, our measures permit us to look at the impact of poverty directly and to at least indirectly consider the effects of Hispanic ethnicity on academic outcomes.

Being poor and the experience of inequity are common experiences for America's children. Twenty-one percent of U.S. children live below the federal poverty threshold[1], and as many as four out of 10 children will be poor at some time during childhood (Ratcliffe, 2015). As poverty and segregation increase in communities, stress can increase and access to core health, economic, and social resources decrease (Jencks & Mayer, 1990). The resulting social costs begin in childhood but persist throughout life and contribute to inter-generational persistence of risk.

We know that individual levels of deprivation are powerful predictors of health and social outcomes, but these influences also become shared characteristics of people in affected areas. These community factors add moderate predictive power in addition to that explained by individual differences (Pickett & Pearl, 2001). Because both challenges and resources concentrate in communities, research on place and health is referred to as area or neighborhood deprivation. The type of community considered can vary from census tracks to whole communities but for this report we define area by the school or school district boundaries.

[1] http://nccp.org/topics/childpoverty.html

Area deprivation rates are predictive of physical and mental health status (Pickett & Pearl, 2001), educational attainment and employment (Jencks & Mayer, 1990), and other interpersonal challenges that complicate the capacity of individuals to improve opportunity for themselves and their children. Specific examples of the impact of area deprivation include:

- Physical health problems including increased risk for heart disease (Diez et al, 2001; Picket & Pearl, 2001), breast cancer (Yost et al., 2001), and increased early mortality (Robbins & Webb, 2004).
- Life experiences that increase health vulnerability beginning in childhood including teen pregnancies (Carlson et al., 2014), low birth weight (Grady, 2006), intimate partner violence (Cunradi et al., 2000), childhood injuries (Shenassa et al., 2004), injuries to women (Grisso et al., 1999), and drug use during pregnancies (Finch et al., 1999).
- Increased risk of mental health disorders (Kubzansky et al., 2005; Ramanathan et al., 2013; Reijneveld et al., 2005; Rehkopf & Bukai, 2006), and
- Increased child maltreatment incidence (Doige et al., 2017; Maguire-Jacks & Font, 2017; Slack et al., 2017).

While social and economic deprivation are powerful risk indicators, poor outcomes are not inevitable. Educational attainment (particularly early education supports), social and cultural resources, access to health care, and social support all are community characteristics that can buffer the effects of deprivation. Consequently, community efforts that address enrichment and connection can meaningfully increase the collective success of communities.

Childhood adversity as an indicator of community risk.

While the impact of poverty on individuals and communities is widely acknowledged, adverse childhood experiences (ACEs, Anda et al., 2006) represent a comparatively new concept that provides a framework organizing much of what we have known about the impact of persistent, overwhelming stress on health and social success. Overwhelming stress can affect neurodevelopment during childhood thus providing a principal pathway for how ACEs contribute to lifelong risk.

ACEs are aligned with the older cumulative risk literature (e.g., McEwen & Gianaros, 2011) which includes a wide range of issues that may result in persistent stress responses at any point across the lifespan. Within this broader risk literature, ACEs are a more restricted set of 10 experiences occurring in childhood that focus on the effects of family disruption (divorce or separation, death of a caregiver, caregiver substance abuse, caregiver mental health problems, and incarceration of a family member) and violence occurring within the family (sexual abuse, emotional abuse, physical abuse, emotional neglect, and physical neglect). Based on report of any of these experiences prior to the age of 18, an individual's ACEs score can range from 0-10. The ACEs framework adds value because tracking exposure to these 10 items has helped document (1) how common these experiences are in any community, (2) that the effects of childhood disruption increases risk across the lifespan for health problems and social disruptions, and (3) that more than exposure to any specific adversity, it is the accumulation of disruptions that contributes to relative risk across people.

Four aspects of ACEs provide added value as a common metric of risk in children. First, ACEs focus on the effect of disruptions in childhood and the resulting increased neurodevelopment risk. While the consequences of ACEs are demonstrated across the lifespan, ACEs are uniquely suited as a descriptor of real time threats in childhood. Second, the specific experiences comprising ACEs are universal in nature cutting across all economic, ethnic, and racial groups. As a result, ACEs can provide a common framework for describing risk across communities. Third, both ACEs and the related cumulative risk literature are associated with a rich literature describing the neurodevelopmental mechanisms placed at risk. Finally, when ACEs are associated with significant adjustment struggles, there is a mental health treatment literature with consensus recommendations on repair that can help guide intervention for individuals and potentially for communities (van der Kolk et al., 2005).

In the general population, approximately one-in-four adults in the United States experience three or more ACEs before the age of 18 (Anda et al., 2006) with comparable results confirmed across the world. While ACEs are universal, we also know that ACEs may increase in specific populations with poverty, certain ethnic and racial groups, and socially disadvantaged communities placed at risk. As ACEs increase, the report of health and social problems increases progressively in what is referred to as the *ACE dose effect*. Increasing ACEs predict health risk behaviors such as smoking and substance use, the development of chronic illnesses, poor life satisfaction, low educational and employment attainment, increased involvement with the criminal justice system, increased risk of additional trauma exposure as an adult, and premature death. Like poverty, ACEs are now considered a leading social determinant of health and life success.

The ACEs literature has primarily been a retrospective report by adults of their childhood experience and its association with health and social risks in adulthood. More recently, descriptions of ACEs exposure in children have started to provide a picture of the emerging nature of adversity. Using a large national survey of child and adolescent health, Bethell et al. (2014) found that 23% of children 0-17 years of age experienced two or more ACEs with most exposure initiated before the age of 11 years.

ACEs effects on educational attainment in adults are well-established but the real-time social and educational impact of ACEs on children is still an area of needed research. Several studies have demonstrated that lower academic performance, greater disciplinary concerns, and attendance problems all increase as children's exposure to ACEs increase (Bethell et al., 2014; Blodgett, 2014; Blodgett & Lanigan, in press; Burke et al., 2011). Blodgett and Lanigan found in a random sample of 2,101 elementary school children, 22% of children had two or more known ACEs and 11% had three or more known ACEs. While the child ACEs exposure estimates are somewhat lower than adult estimates, the available data demonstrates that ACEs in children are common, established early in life, and predictive of academic and social adjustment problems in schools.

The emerging child ACEs literature also documents that children from communities with higher area deprivation are at greater risk for ACEs. Using parental report of their children's ACEs exposure in a Head Start sample, Blodgett (2014) reported 55% of children had experienced two or more ACEs and 25% had experienced four or more ACEs by the age of four years. In a high risk pediatric practice, Burke et al. (2011) found that 36% of children had experienced at least two ACEs. All three of these studies found that academic failure and adjustment problems in children increased as ACEs increased.

In this report, we consider ACEs exposure as a quality of communities reflecting the collective experiences of people. This use of ACEs as a community characteristic is a comparatively recent extension of the existing literature and ACEs are only now beginning to be integrated into the larger area deprivation research field. Several recent studies support employing ACEs as mechanism for describing area deprivation that complements and extends what we know about poverty as a principal contributor to area deprivation. Several of these reports confirm that as adversity in the overall community increases, academic and adjustment problems increase in the community. Flouri et al. (2010) found that preschool children's ACEs exposure remained a significant predictor of preschool behavior concerns after accounting for area economic deprivation, maternal income, and maternal mental health. Studying the impact of ACEs in a large scale low-income cohort, Giovanelli et al. (2016) found that ACEs reliably predicted health risk behaviors, mental health problems, and criminal justice involvement after controlling for demographic differences and involvement in early support services. Employing a cumulative risk rather than an ACEs framework, Morales and Guerra (2006), demonstrated that cumulative stress was associated with educational achievement lags and increased adjustment struggles among low income, high risk urban youth. Significantly, the authors concluded that the cumulative risk, similar to increasing ACEs, rather than current problems resulting from poverty, was the more powerful predictor of adjustment problems.

As is the case with poverty, exposure to ACEs does not inevitably result in social and health problems. The effects of ACEs are mitigated by individual differences such as intelligence and temperament as well as social supports, opportunities for meaningful work and contribution to others, mastery of relationship skills that promote interpersonal connections, and emotional self-management skills which help to regulate the physiological stress response. These personal attributes and social conditions collectively are referred to as resilience.

Resilience reflects an individual's ability to function competently and prosper in the face of prolonged adversity (Luthar, Cicchetti, & Becker, 2000). While genetics contribute to individual capacity to be resilient, resilience is a dynamic capacity built up and spent down in the face of adversity. Protecting people from the effects of adversity involves four inter-locking areas of intervention (Rutter, 1987): (1) end continued exposure and reduce reliance on the coping strategies and beliefs that helped in the past with coping with adversity but now function poorly in other settings and relationships; (2) interrupt negative chain reactions (e.g., adversity leads to trauma adaptations that in turn lead to rejection, isolation, and punishment in peer and adult relationships); (3) create and maintain realistic self-esteem and self-efficacy; and (4) open up opportunities for real accomplishments necessary to build a sense of personal mastery. Critically, both exposure to adversity and the opportunities to build resilience are defined by our connections to others and the richness of the social environment in which we live. Mitigating exposure to adversity and building resilience require strong social bonds and opportunities to be challenged. Consequently, family, schools, and the communities contribute to our exposure to ACEs and our resources to build resilience.

Because of children's reliance on adults for safety and support, we need to attend both to the capacity of the child and the parent in understanding how ACEs can affect educational success. Nurius et al. (2012) found that ACEs were predictive of mental health adjustment in adults after controlling for current socioeconomic status furthering the argument that ACEs, while related to poverty, have a distinctive predictive value when examining risk. Similarly, Metzler et al. (2016) documented that ACEs history in adults are associated with lower high school completion, lower current income, and less occupational success suggesting a mechanism for the overlap of poverty and ACEs risk. Blodgett (2014) found that more than 60% of Head Start parents reported three or more ACEs in their own childhoods, and increasing parental ACEs were associated with both higher ACEs in their young children and delayed development progress. Steele et al. (2016) found, after controlling for poverty, that ACEs were predictive of parenting stress as a principal influence on the quality of parent-child relationships. Adversity in caregivers may impact not only their adjustment but their children's comparative risk for exposure. In addition to increasing parental adjustment risk, lower parental educational and employment success may compromise the material and social resources that support resilience. Because children rely on a network of significant adults (teachers, neighbors, extended family) as they grow, the evidence that ACEs may compromise caregiving behaviors and resources lends plausibility to our core hypothesis that understanding the degree of ACEs in a community's adults may help explain relative risk in children across communities.

In summary, there is a strong research foundation to support the statement that we need to consider the quality and capacity of communities as important additions to the known individual and family factors that contribute to children's success. Poverty and ACEs can have profound effects on both child and adult success. But how these influences play out in a specific community defines a complex landscape as poverty, ACEs, and community assets combine to affect the health and wellbeing of all residents.

The degree to which poverty and ACEs are associated remains an active debate in the literature. We know that ACEs are meaningfully higher in poor communities but the mechanisms explaining this relationship still need to be determined. Poverty may strip away key resources that permit caregivers to reduce their children's exposure to adversity; while a history of increasing ACEs may undercut economic success, employment stability, and social connections in ways that increase the risk of entering or remaining in poverty. Based on the results of this and the previous two companion reports, our working conclusion is that poverty and ACEs are related but independent influences in the lives of children, families, and communities.

Ethnic diversity and the paradoxical impact on academic success and developmental risk

In the 2016-17 academic year, Washington State's public school enrollment included 23% Hispanic children and 11% of students identified as English language learners. The Pew Research Center (2008) projects that the Hispanic population in the United States will reach 29% of the general population suggesting that Washington should anticipate continuing growth among Hispanic residents. Therefore, any effort to address academic success and youth wellbeing must address the potential cultural influence of the Hispanic populations' importance to the state's communities.

In our previous two reports, we found dramatic differences in academic success as a function of Hispanic ethnicity and ELL status. This increased academic risk was true for both individual student differences and schools' percent ELL and Hispanic enrollment. Hispanic and ELL student enrollment was associated with significantly lower academic success and higher poverty but evidence for the effects of community ACEs were comparatively weak as Hispanic and ELL enrollment increased. Indeed, until we controlled for Hispanic and ELL differences, developing a coherent set of findings was not possible.

In Hispanic communities, while residents may be disproportionately at risk with respect to poverty and other social problems, culture may buffer against the negative effects of these risks. Researchers (Becares et al., 2009; Halpern, 1993) have proposed the ‘ethnic density hypothesis’ where close and frequent connections, social support, and shared behavior norms are distinguishing assets. This paradoxical effect is open to criticism with respect to selection bias in past studies and the difficulty defining the factors that may be protective (Caballero et al., 2017). Attention to these possible limitations is warranted. We need to be cautious about overstating the impact of ethnicity as a protective factor but need to this consider potential benefit as we address the significant concerns regarding academic outcomes.

Methodology.

Publicly available[2] school demographic data, standardized test results, unexcused absence rates, and graduation rates from the 2014-15, 2015-16, and 2016-17 school years were used to describe school and academic outcomes. Across the three years, when school demographic data was missing for a specific year, the school data from the most recent year with valid data was used. The various data tables within a year were combined at the school level and then the three years were combined in a master database. In addition, school level data using the composite Educational Achievement Index developed in Washington State were analyzed.

The Washington State Office of the Superintendent of Public Instruction (OSPI) modified its publicly available school testing results to include all students as well as specific student sub-population of interest including White, Hispanic, enrolled or not enrolled in special education, and low income or ‘not low income’ students. Testing results for each of these subgroups were independently analyzed.

Community risk and protective factors were drawn from three sources: the 2016 Washington State Healthy Youth Survey, the 2012 Centers for Disease Control and Prevention’s Behavioral Risk Factor Surveillance System (BRFSS)[3], and the Washington State Community Risk Profiles. These data sources are presented in detail below. Data from these three sources were merged with the school demographic, testing, unexcused absences, and graduation data either at the individual district or the ‘locale’ level. A school locale is a grouping strategy developed by the Washington State Department of Social and Health Services to pool similar small school districts into groups to permit more stable analysis of trends in school performance.

The independent variables tested in these analyses are school poverty and the percent of adults in a school community (district or combined locale) with three or more ACEs. Poverty levels across schools were defined as the percent of Free and Reduced Meal (FRM) eligible students in the school. ACEs were estimated based on more than 30,000 BRFSS household surveys conducted in 2009-2011.

[2] http://reportcard.ospi.k12.wa.us/DataDownload.aspx

[3] More recent BRFSS data is available but not with the additional geographic coding of participants to permit detailed linking of responses to the schools.

Statistical tests, unless otherwise discussed, employed a methodology called Generalized Estimating Equations (GEE). GEE is an analytic approach that allows for control of differences across schools for factors that are highly correlated with each other and with the primary variables of interest. The nature of the community, the policies and practices of the district, and differences across schools all potentially could influence school response, community risk, and academic progress over time. Specifically, we used GEE to control for the effects of district/locale, type of school community (urban, suburban, town, rural) and the individual schools. In addition, we included percent Hispanic and English Language Learner (ELL) enrollment as covariates in all analyses. The importance of accounting for Hispanic and ELL enrollment is explained below.

Using administrative and other descriptive data about risk and protective factors introduces some challenges because of the distribution of important school characteristics across communities. For example, school poverty and community ACEs across school communities are not evenly distributed. Rather, poverty and ACEs in communities are modestly correlated with each other. This association between poverty and ACEs is made more pronounced by the reality that poverty disproportionately impacts public schools serving high percentages of lower income families. As a result, the distribution of poverty and ACEs across Washington State schools results in comparatively fewer low poverty/low ACEs school communities. This has a potential effect on statistical tests, particularly when cell sizes in poverty-by-ACEs comparisons are too low or there are dramatic differences in cell sizes within an analysis. Before reporting findings, we determined if the cell size and proportion of the cell counts within an analysis were consistent with statistical tests (cell size included 10 or more schools and a ratio across cells not greater than 1:10). These checks are not reported in the body of this report but are available on request.

Because we examined standardized test results across three years and seven grade levels, there are many analyses integrated in this report. The chance of concluding a finding is significant when it is not increases as the number of related tests increases. To protect against this, we set the rule that individual statistical tests had to reach a significance level of $p<.01$ and a 'meaningfulness' rule (e.g., the result has to have practical implications) of at least a 3-point mean passing percent difference for a result to be reported. Poverty by ACEs interactions were tested at the $p<.05$ level.

Results.

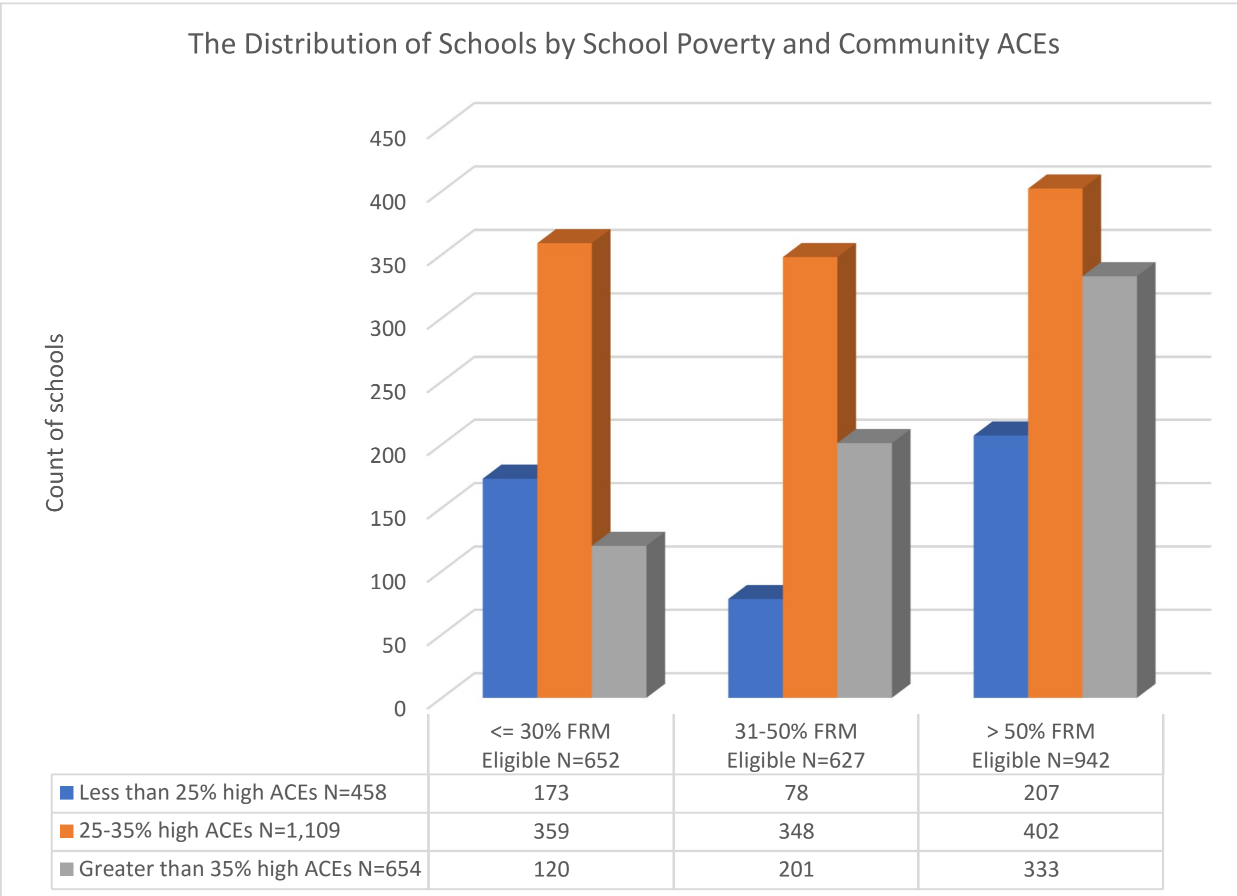
In the academic analyses presented in these reports we examined school data from the 2014-15, 2015-16, and 2016-2017 school years. These three years include the full adoption of the Common Core curriculum in Washington and adoption of the associated Smarter Balanced Assessment (SBA) system which replaced prior state standardized tests. We conducted our analyses in each of the three years to assure that there was consistency in results across the years and to identify if there were any changes in academic trends over the three years.

A. Summary descriptive data.

Before presenting the analyses address school academic differences, it is useful to provide an overall summary of the principal variables we include in the analyses.

The first finding of note is that high poverty schools include half again as many schools (N=942) as schools we defined in our lower poverty group (N=652). By contrast, community ACEs levels place roughly half of all schools in our intermediate ACE group. This difference in school distributions limited some of our analyses as discussed in the body of the report. The second observation is that high poverty schools are disproportionately in higher ACEs communities which again impacted some of our analyses particularly for sub-groups of students across grades.

Figure 1; The distribution of schools by poverty and ACEs

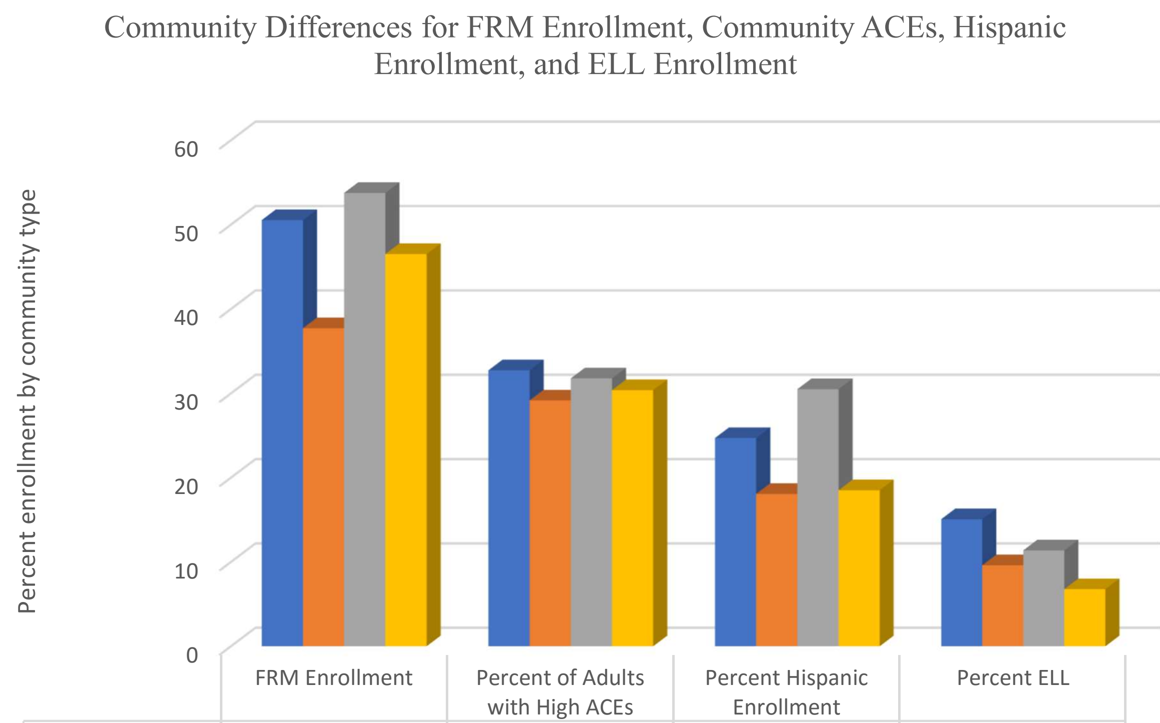


	<= 30% FRM Eligible N=652	31-50% FRM Eligible N=627	> 50% FRM Eligible N=942
Less than 25% high ACEs N=458	173	78	207
25-35% high ACEs N=1,109	359	348	402
Greater than 35% high ACEs N=654	120	201	333

Chi Square (4) = 89.1, $p<.001$

We also found systematic differences in academic performance, school poverty, and community ACEs as a function of the type of community the school served.

Figure 2: Community differences on key study demographics

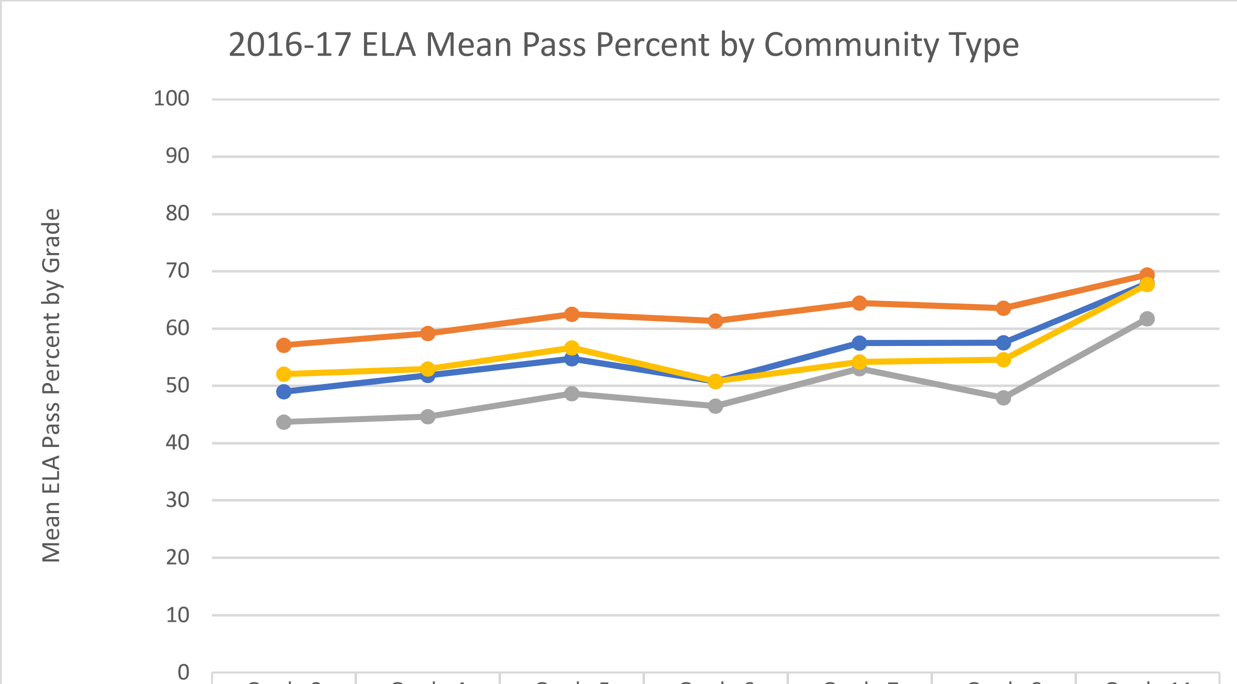


	FRM Enrollment	Percent of Adults with High ACEs	Percent Hispanic Enrollment	Percent ELL
City N=572	51	33	25	15
Suburban N=764	38	29	18	10
Town N=327	54	32	31	11
Rural N=558	47	30	19	7

All community differences on the four variables are significant ANOVA tests at $p<.001$

Also, with respect to the type of community, we found highly stable differences in the type of community (city, suburban, town, or rural) and SBA pass percent. Although the trend in results differ for ELA and Math results on SBA testing, suburban schools have the highest mean pass percent results, schools in towns the least, and city and rural schools demonstrate intermediate levels of success.

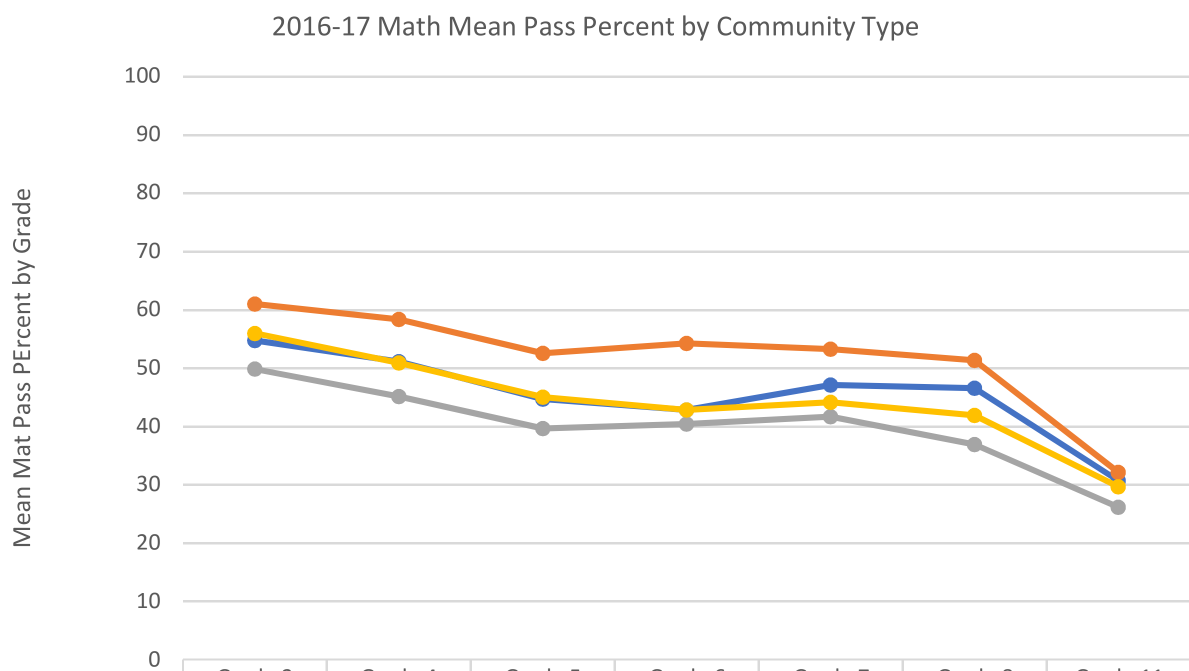
Figure 3: Mean ELA pass percent by community type



	Grade 3 N=1,056	Grade 4 N=1,061	Grade 5 N=1,029	Grade 6 N=618	Grade 7 N=434	Grade 8 N=428	Grade 11 N=288
City	49	52	55	51	57	58	68
Suburban	57	59	63	61	64	64	69
Town	44	45	49	46	53	48	62
Rural	52	53	57	51	54	55	68

All grade level community differences are significant ANOVA tests at p<.001 except for Grade 11 which is non-significant

Figure 4: Mean Math pass percent by community type



	Grade 3 N=1,056	Grade 4 N=1,055	Grade 5 N=1,025	Grade 6 N=616	Grade 7 N=434	Grade 8 N=424	Grade 11 N=265
City	55	51	45	43	47	47	31
Suburban	61	58	53	54	53	51	32
Town	50	45	40	40	42	37	26
Rural	56	51	45	43	44	42	30

All grade level community differences are significant ANOVA tests at p<.001 except for Grade 11 which is non-significant

In summary, a challenge that has to be addressed through statistical design is that our key variables are (1) highly intercorrelated, (2) concentrated in particular types of communities, and (3) highly correlated with standardized test outcomes.

B. Poverty, ACEs, and community risk.

In the *No School Alone* report and the related *Every Child School Ready* report, we presented detailed findings to support the conclusion that poverty and community ACEs serve as effective summary measures of community risk for a wide range of economic, social, health, and criminal justice risk and protective indicators. We found in examining more than 100 specific indicators that ACEs and poverty were highly associated with these diverse measures. We also determined that retaining specific risk and protective factors added little predictive benefit when looking at academic success and youth wellbeing.

Rather than reproduce these extensive analyses, we summarize key findings and encourage interested readers to review the previous reports. The three data sources that can be linked to the school district catchment areas are: The Healthy Youth Survey[4] (HYS), the U.S. Center for Disease Control and Prevention's Behavioral Risk Factor Surveillance System[5] (BRFSS), and the Washington State Department of Social and Health Services' Research and Data Analysis (RDA) Community Risk Profiles. U.S. Census data would be a fourth resource but as this report is prepared the detailed local census information is now too dated to be used as an accurate set of descriptors.

HYS is a voluntary anonymous survey of approximately 200,000 students in grades 6, 8, 10, and 12. Conducted as an annual large-scale household interview study, BRFSS addresses adults' health risk behaviors, the occurrence of many health conditions, and access to and use of preventive services. BRFSS also is the resource that provides the estimated ACEs exposure among adults in the school communities. The RDA community risk profiles[6] are annually updated multi-year rates of various risk factors organized at school district and locale geographic levels. The community risk profiles include a range of measures organized in the following domains:

- Community domain including drug availability, indicators of extreme economic and social deprivation, mobility, criminal behavior in adults, and neighborhood attachment and community disorganization.
- Family domain including a number of family disruption indicators.
- School domain including academic achievement and school climate measures.
- Individual and peer domain including early criminal justice involvement.
- Problem outcomes including substance use, child health, and caregiver health.

The following three tables present the significant relationships we found between these community risk and protective factors, poverty, and community ACEs. In each instance, increasing poverty or ACEs in the community are associated with greater risk or lower protective resources.

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[4] HYS, https://www.doh.wa.gov/DataandStatisticalReports/DataSystems/HealthyYouthSurvey
[5] BRFSS,
https://www.doh.wa.gov/DataandStatisticalReports/DataSystems/BehavioralRiskFactorSurveillanceSystemBRFSS
[6] RDA, https://www.dshs.wa.gov/sesa/research-and-data-analysis/community-risk-profiles

Summary of RDA risk and protective factors significant relationships to poverty and ACEs

	Poverty	Community ACEs
Temporary Assistance to Needy Families (TANF), Child Recipients, Five Year Rates	X	---
Victims of Child Abuse and Neglect in Accepted Referrals, Five Year Rates	X	X
Alcohol- or Drug-Related Deaths, Five Year Rates	X	---
Arrests (Age 10-17), Alcohol Violation, Five Year Rates	X	X
Births to School-Aged (10-17) Mothers	X	X
Injury or Accident Hospitalizations for Children, Five Year Rates	X	X
Child Mortality (Ages 1-17), Five Year Rates	---	X
Low Birth Weight Babies, Five Year Rates	X	---
Offenses, Domestic Violence, Five Year Rates	X	X
Weapons Incidents in School, Five Year Rates	---	X

X- Significant relationship --- Not a significant relationship

Summary of BRFSS selected measures' relationship to poverty and ACEs.

	Poverty	Community ACEs
General Physical Health	X	---
Mean Days Poor Physical Health in Past 30	X	X
Body Mass Index (Obesity measure)	X	---
Current cigarette use	---	X
Percent disabled adults in the community	X	X
Mean Days Poor Mental Health in Past 30	X	X
Mean Life Satisfaction Score	X	X

X- Significant relationship --- Not a significant relationship

Summary of HYS risk and protective scales' relationship to poverty and ACEs

	School Poverty	Community ACEs
Community Risk Laws and Norms Favorable to Drug Use	X	---
Community Risk Perceived Availability of Drugs	X	---
Community Risk Opportunities for Prosocial Involvement	X	---
Family Protective Rewards for Prosocial Involvement	X	X
School Risk Academic Failure	X	X
School Risk Low Commitment to School	X	X
Peer-Individual Risk Favorable Attitudes Towards Drug Use	X	---
Peer-Individual Risk Perceived Risk of Drug Use	X	X
Peer-Individual Protective Opportunities for Prosocial Involvement	X	---

X- Significant relationship --- Not a significant relationship

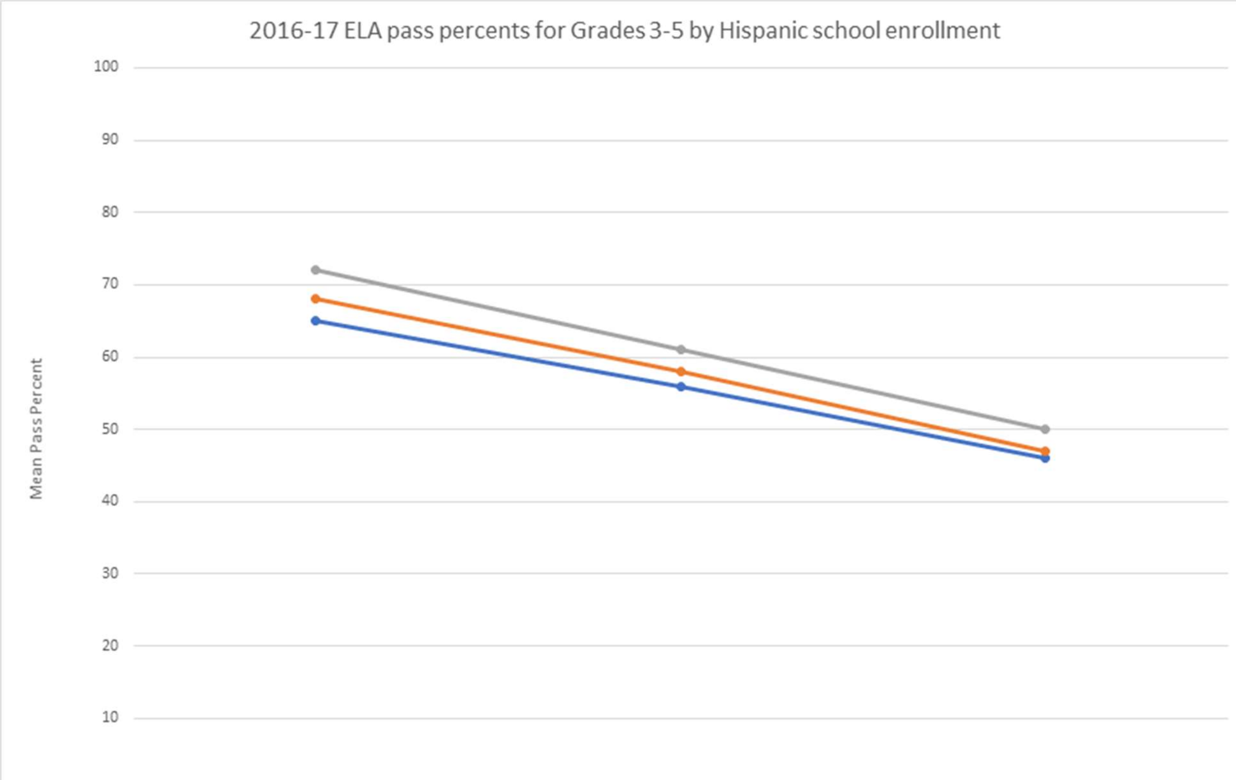
The Washington State legislative request that initiated this series of reports was to determine if academic progress and youth wellbeing could be effectively predicted by differences in local social and economic conditions. We have concluded that the evidence supports poverty and ACEs in communities as two interwoven influences defining conditions that can contribute to significant variation in risk and assets across communities. Consequently, we have retained poverty and ACEs as the two summary measures to be employed in predicting differences in the success of children in Washington communities.

B. Hispanic and ELL enrollment effects on standardized test success.

Using GEE analysis to control for locality and school differences, we tested the interaction of Hispanic and ELL enrollment on standardized test results. We had sufficient school counts to permit analyses for Grade 3, 4, and 5. For later grades, the distribution of schools was so skewed reflecting higher ELL enrollment in the highest Hispanic enrollment schools that analyses were not appropriate.

We found a consistent main effect for Hispanic enrollment on standardized test outcomes for all three years considered and all three grades tested. In each instance, as Hispanic enrollment increased, standardized test mean pass percent was lower. The following figures summarize the ELA and Math results for grades 3-5 in the 2016-17 school year. For grade 5 Science, the mean pass percent rates mirror the results for ELA and Math.

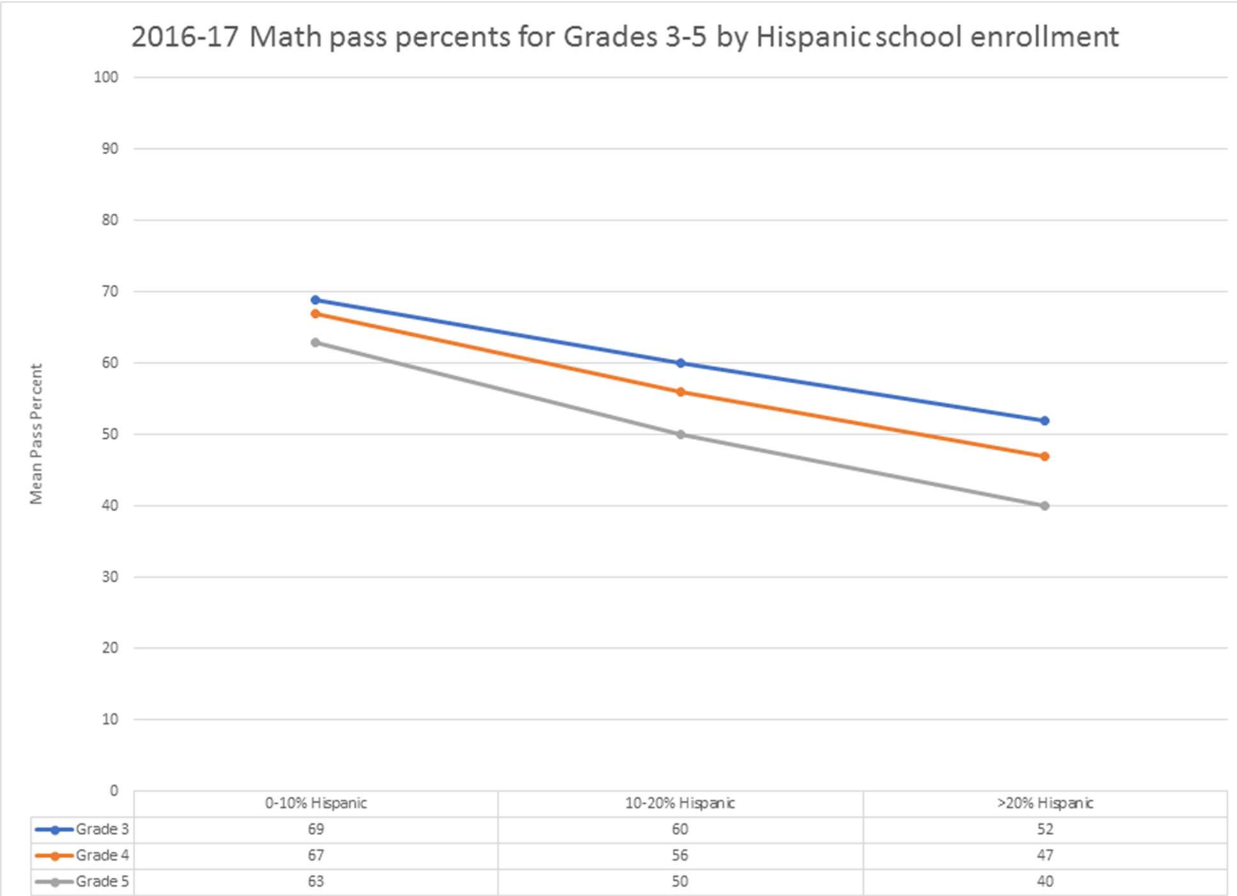
Figure 5: ELA pass percent by Hispanic enrollment in grades 3-5



	0-10% Hispanic	10-20% Hispanic	>20% Hispanic
Grade 3	65	56	46
Grade 4	68	58	47
Grade 5	72	61	50

Main effect for Hispanic enrollment in each year significant at p<.001

Figure 6: Math pass percent by Hispanic enrollment grades 3-5



Main effect for Hispanic enrollment in each year significant at $p<.001$

Based on school enrollment, we found that Hispanic enrollment levels have large and consistent effect on standardized test results. Because the distribution of ELL enrollment across schools is highly correlated with Hispanic enrollment, we concluded that the data did not permit a test of the effect of ELL school enrollment.

In each of the following results, the actual Hispanic and ELL school percent enrollments were included as covariates in the analyses. Hispanic enrollment was a significant covariate in all reported analyses while the effect of ELL enrollment was more variable. To simplify presentation of these already complicated results, we have chosen not to report the results for these covariates in each of the analyses.

C. Standardized test success as predicted by poverty and ACEs.

The effects of poverty and ACEs on students' academic success are based on 2016-2017 testing results organized by student groups across Grades 3 through 11. While not reported, we confirmed that the 2016-17 school year results (1) represent the same pattern of findings for the 2014-15 and 2015-16 school years and (2) that there were not significant changes in the relationships over the three years.

The student groups included in this report were determined by which groups had sufficient schools to permit analyses. The groups include: All students, White students, Low-income students, Non-Low-income students, SPED students, Not-SPED students, and Hispanic students. In some student groups, not all grade levels are analyzed because of insufficient schools for analysis.

Within each student group, we provide a table of the findings across the grade levels, a summary of the results for the student group, and then the specific significant grade level results. The following statistical terms are used in the summaries:

- Interaction- this indicates that the significant finding suggest that poverty and ACEs were predictive of standardized test pass percentage, but the effect depended on the level of poverty and ACEs examined. Interactions are presented as graphs.
- Main effect- this indicates that either poverty or ACEs significantly predicted test success as an independent influence. Either or both poverty and ACEs could be a significant independent influence on test success. These results are presented in tables for each subpopulation of students.

1. All Students and SBA Outcomes.

Summary of Significant Findings for School Poverty and ACEs- All Students

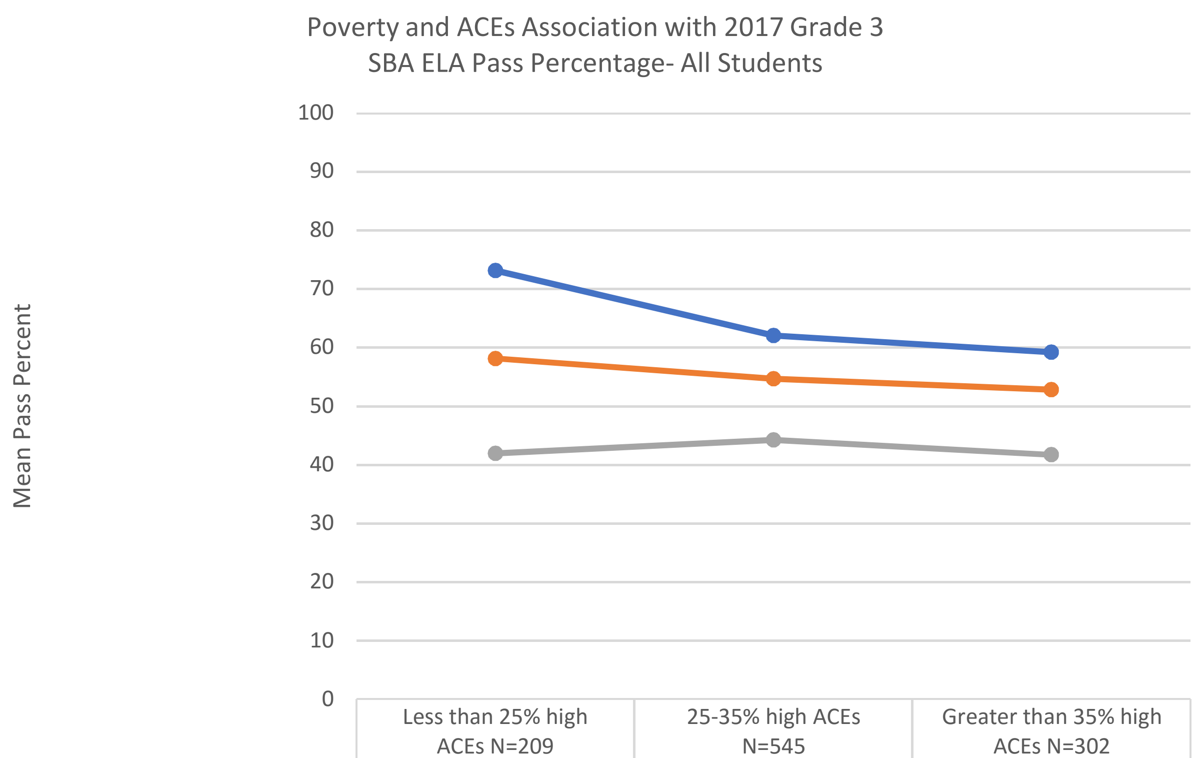
	ELA	Math	Science/Biology
Grade 3	Interaction	Interaction	---
Grade 4	Interaction	Interaction	---
Grade 5	Interaction	Interaction	Poverty main effect, ACEs main effect
Grade 6	Interaction	Interaction	---
Grade 7	Interaction	Poverty main effect, ACEs main effect	---
Grade 8	Poverty main effect	Interaction	Interaction
Grade 10/11	Poverty main effect	Poverty main effect	Poverty main effect

For all students, both school poverty and community ACEs were found to be associated with meaningful differences in standardized test results across all grades. The exception was Grade 10/11 testing where poverty was found to be the sole significant predictor. Across all grades and subjects, we found that there are pronounced differences based on the level of school poverty (percent of students FRM eligible). For Grades 3-8, the principal findings indicate an interaction effect for poverty and ACEs such that the most pronounced effects for ACEs are in the schools with the lowest or intermediate percent of poor students. We consistently found that the level of school poverty is associated with greater differences in standard test results than are different levels of community ACEs.

The analyses for all students in Grades 10/11 is the only level of testing for these grades in which there were sufficient schools to permit analysis. As a result, the finding that poverty was the primary predictor and ACEs were not significant may be an accurate finding but may also reflect less sensitivity in the analysis to test the effects of ACEs.

Grade 3- All Students

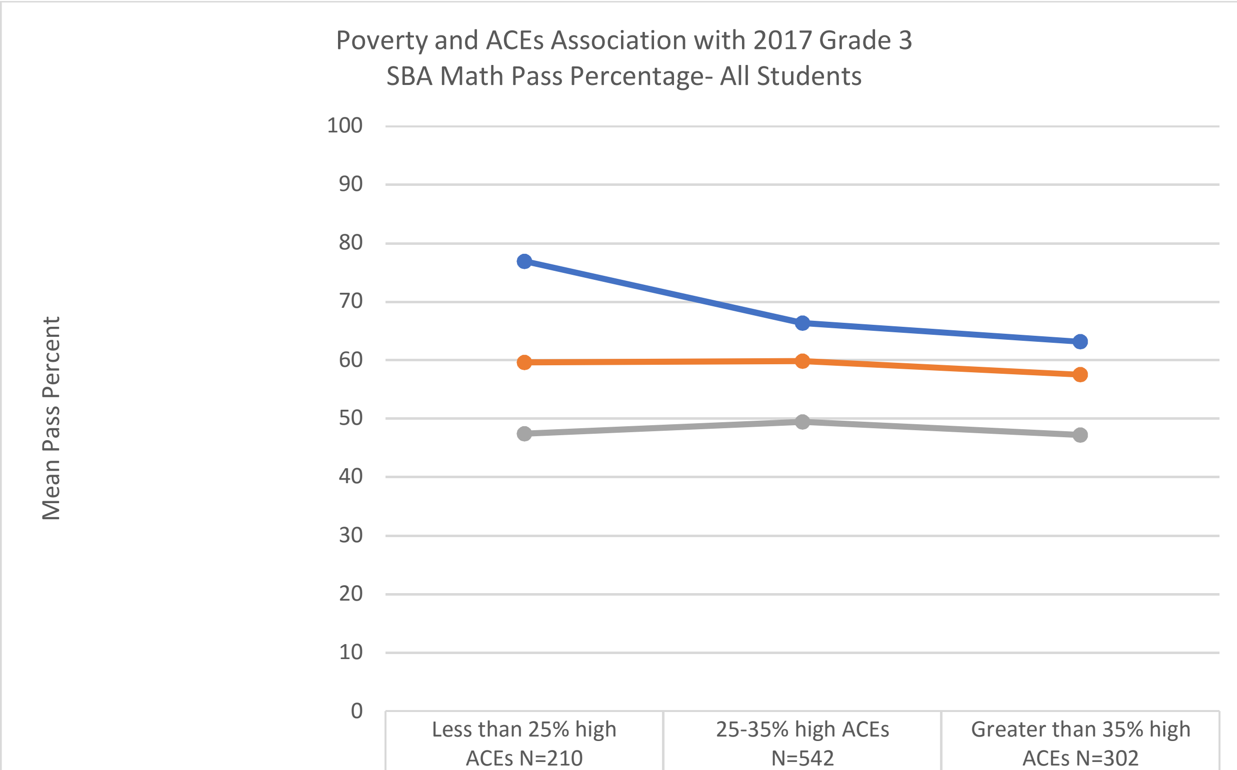
Figure 7: Grade 3 ELA poverty by ACEs interaction-All students



	Less than 25% high ACEs N=209	25-35% high ACEs N=545	Greater than 35% high ACEs N=302
<= 30% FRM Eligible N=299	73	62	59
31-50% FRM Eligible N=275	58	55	53
> 50% FRM Eligible N=482	42	44	42

Poverty by ACEs Interaction: Wald Chi Sq. (4) = 31.5, p<.001

Figure 8: Grade 3 Math poverty by ACEs interaction- All students

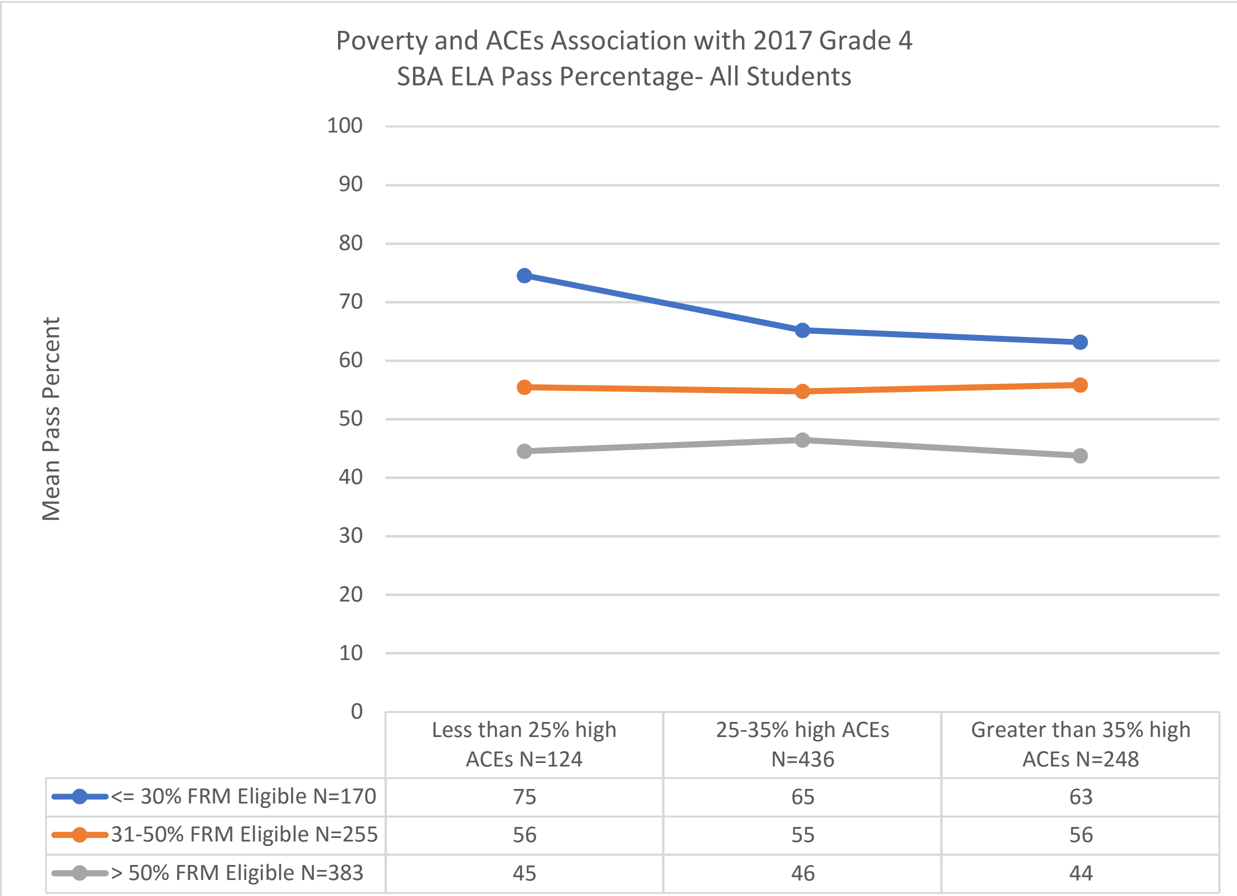


	Less than 25% high ACEs N=210	25-35% high ACEs N=542	Greater than 35% high ACEs N=302
<= 30% FRM Eligible N=296	77	66	63
31-50% FRM Eligible N=274	60	60	58
> 50% FRM Eligible N=484	47	49	47

Poverty by ACEs Interaction: Wald Chi Sq. (4) = 26.1, p<.001

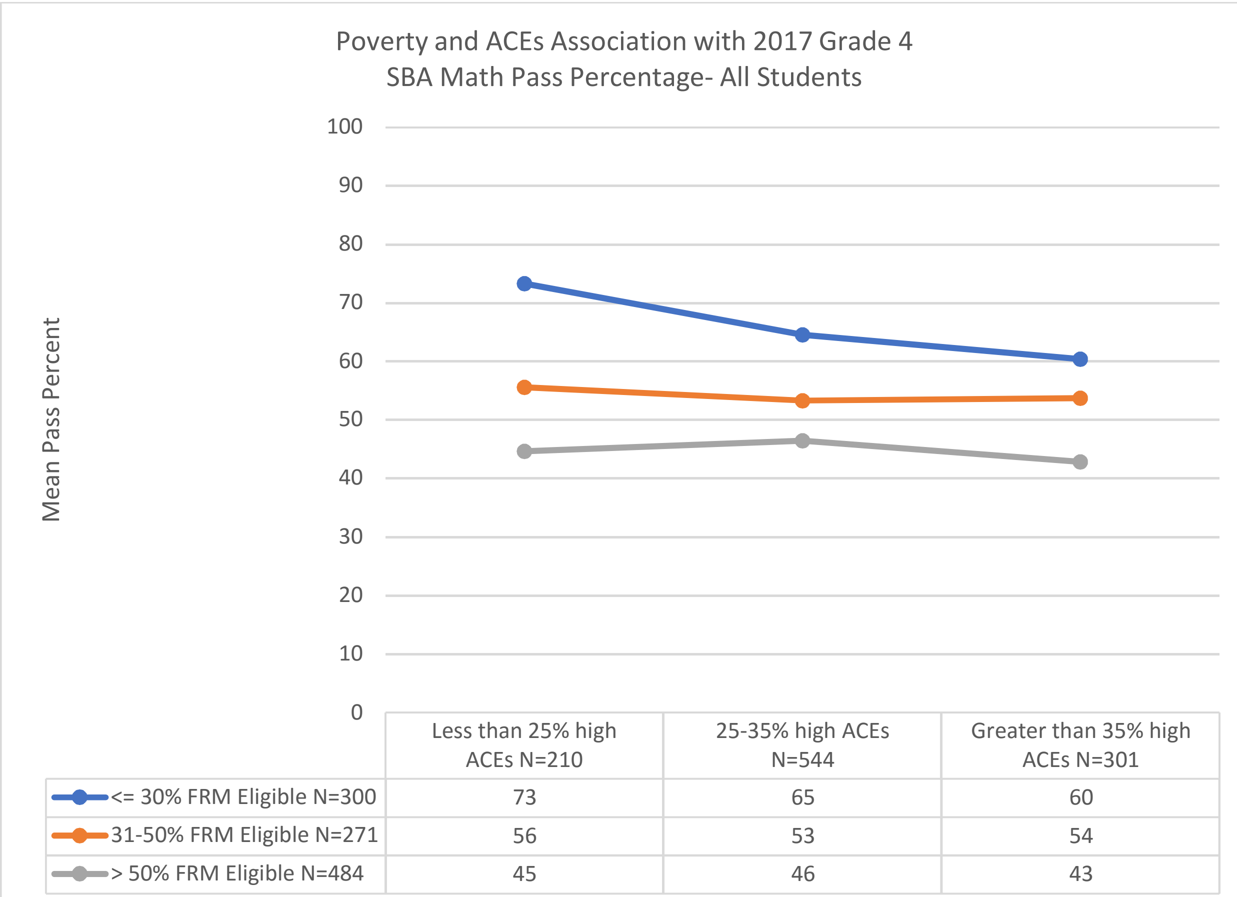
Grade 4- All Students

Figure 9: Grade 4 ELA poverty by ACEs interaction-All students



Poverty by ACEs Interaction: Wald Chi Sq. (4) = 26.9, p<.001

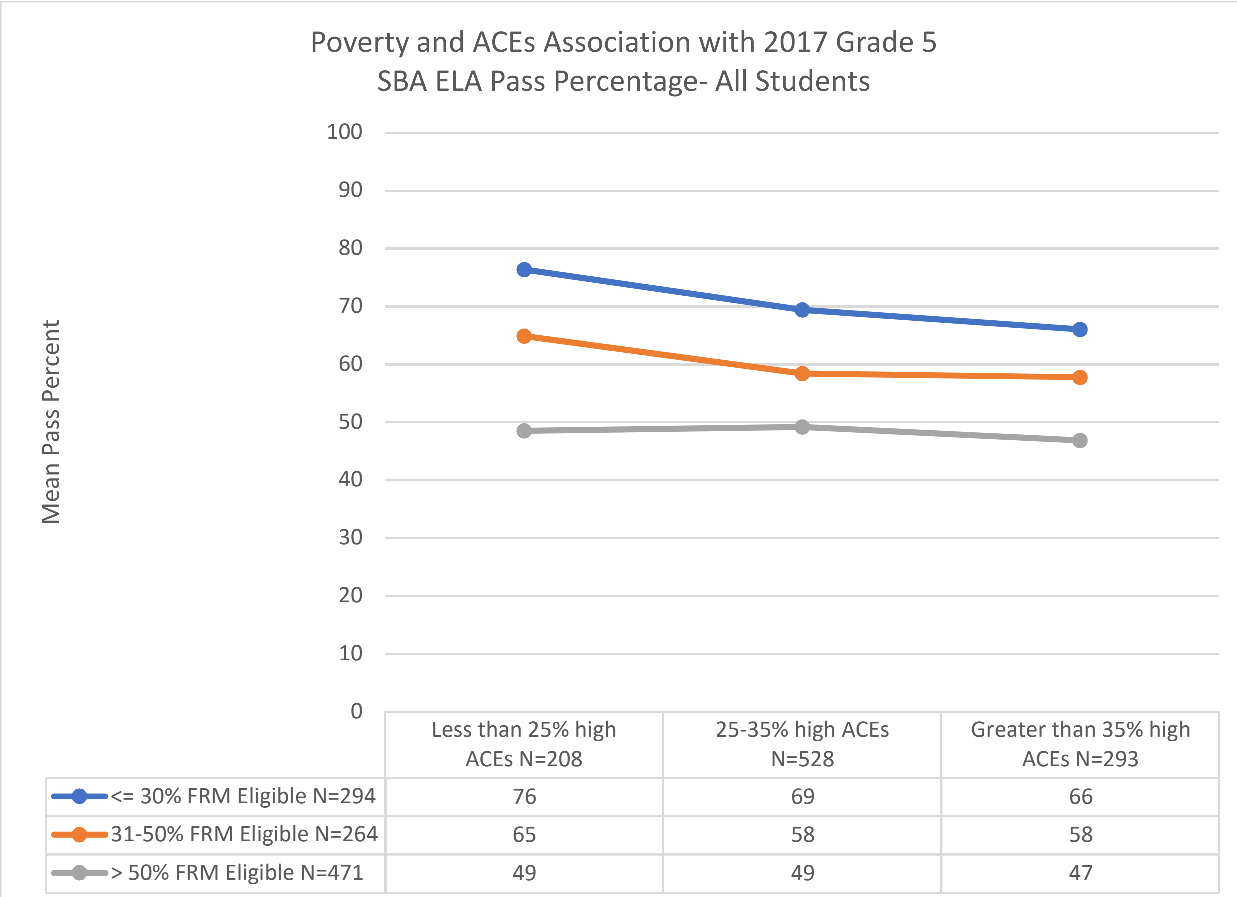
Figure 10: Grade 4 Math poverty by ACEs interaction



Poverty by ACEs Interaction: Wald Chi Sq. (4) = 20.3, p<.001

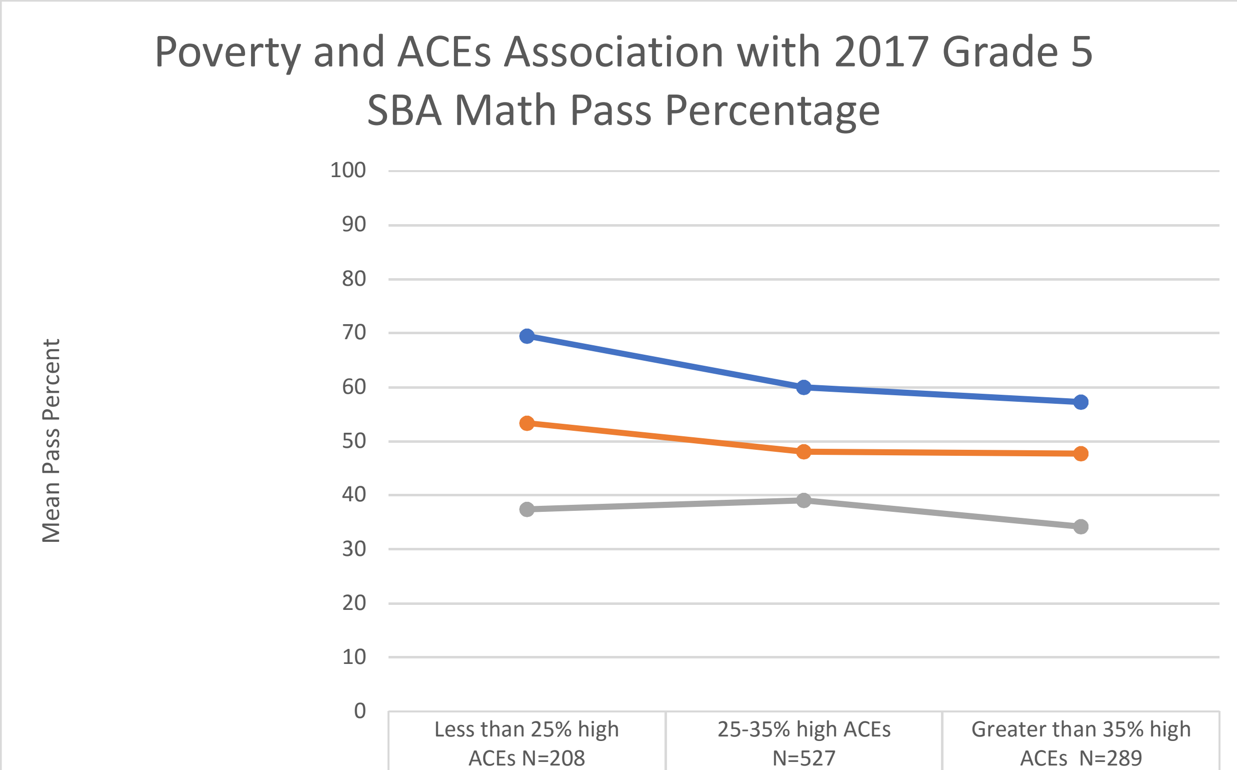
Grade 5- All Students

Figure 11: Grade 5 ELA poverty by ACEs interaction- All students



Poverty by ACEs Interaction: Wald Chi Sq. (4) = 32.4, p<.001

Figure 12: Grade 5 Math poverty by ACEs interaction- All students



	Less than 25% high ACEs N=208	25-35% high ACEs N=527	Greater than 35% high ACEs N=289
<= 30% FRM Eligible N=296	70	60	57
31-50% FRM Eligible N=262	53	48	48
> 50% FRM Eligible N=466	37	39	34

Poverty by ACEs Interaction: Wald Chi Sq. (4) = 17.8, p<.001

Grade 5 Science All Students

Grade 5: Science and poverty- All students

	Mean Pass Percent
<= 30% FRM Eligible N=290	74
31-50% FRM Eligible N=265	65
> 50% FRM Eligible N=470	53

Main effect for Poverty: Wald Chi Sq. (2) = 185.0, p<.001

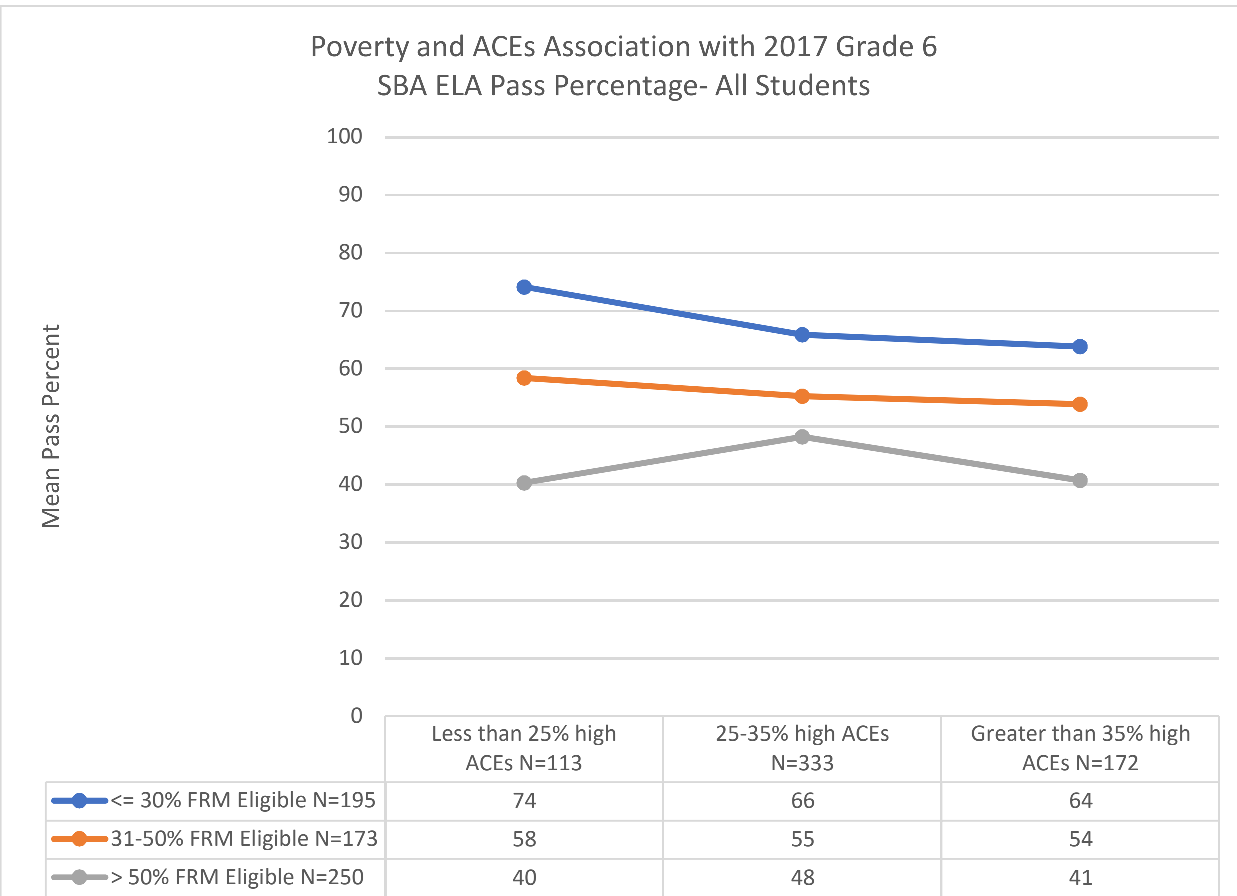
Grade 5: Science and community ACEs-All students

	Mean Pass Percent
Less than 25% high ACEs N=207	68
25-35% high ACEs N=527	63
Greater than 35% high ACEs N=291	62

Main effect for ACEs: Wald Chi Sq. (2) = 29.7, p<.001

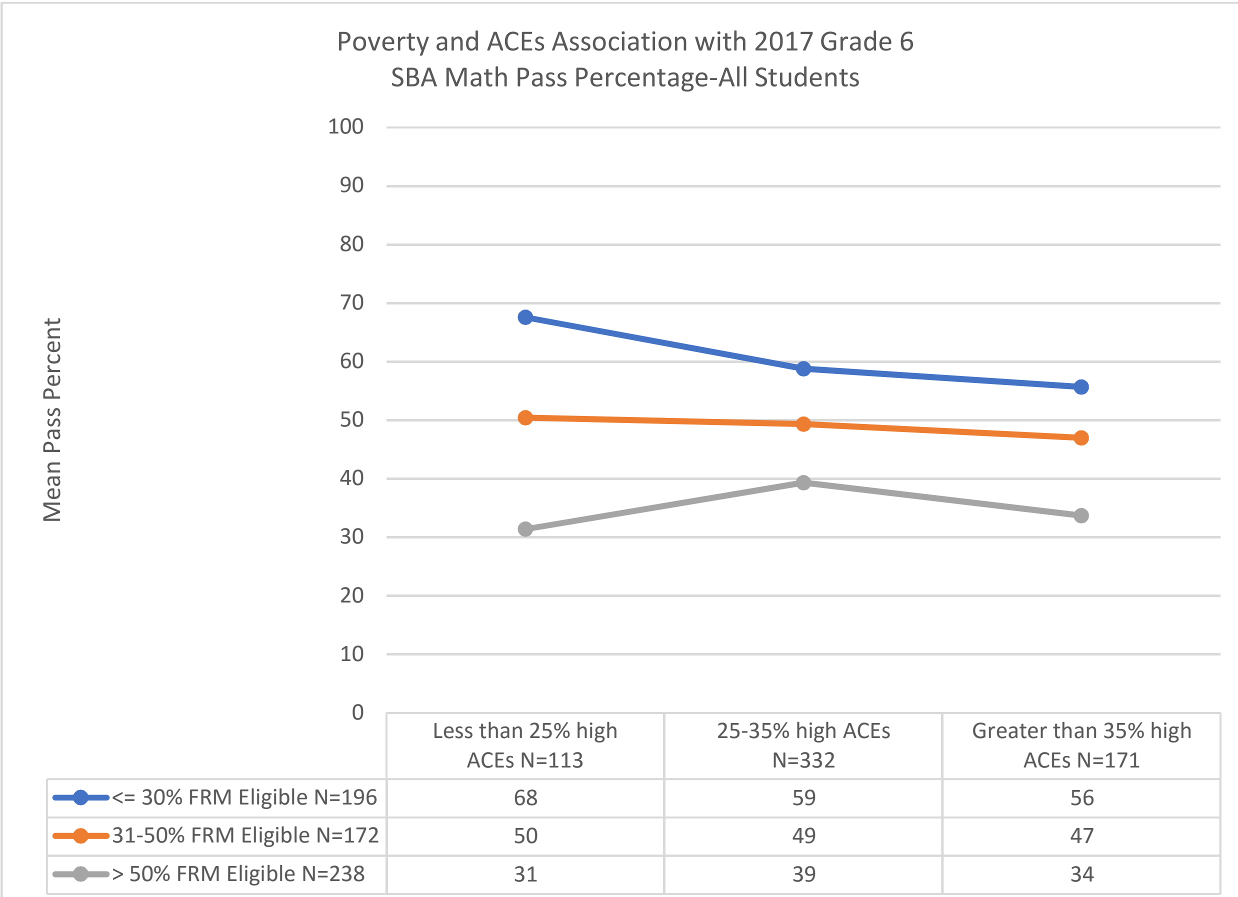
Grade 6- All Students

Figure 13: Grade 6 ELA poverty by ACEs interaction- All students



Poverty by ACEs Interaction: Wald Chi Sq. (4) = 27.3, p<.001

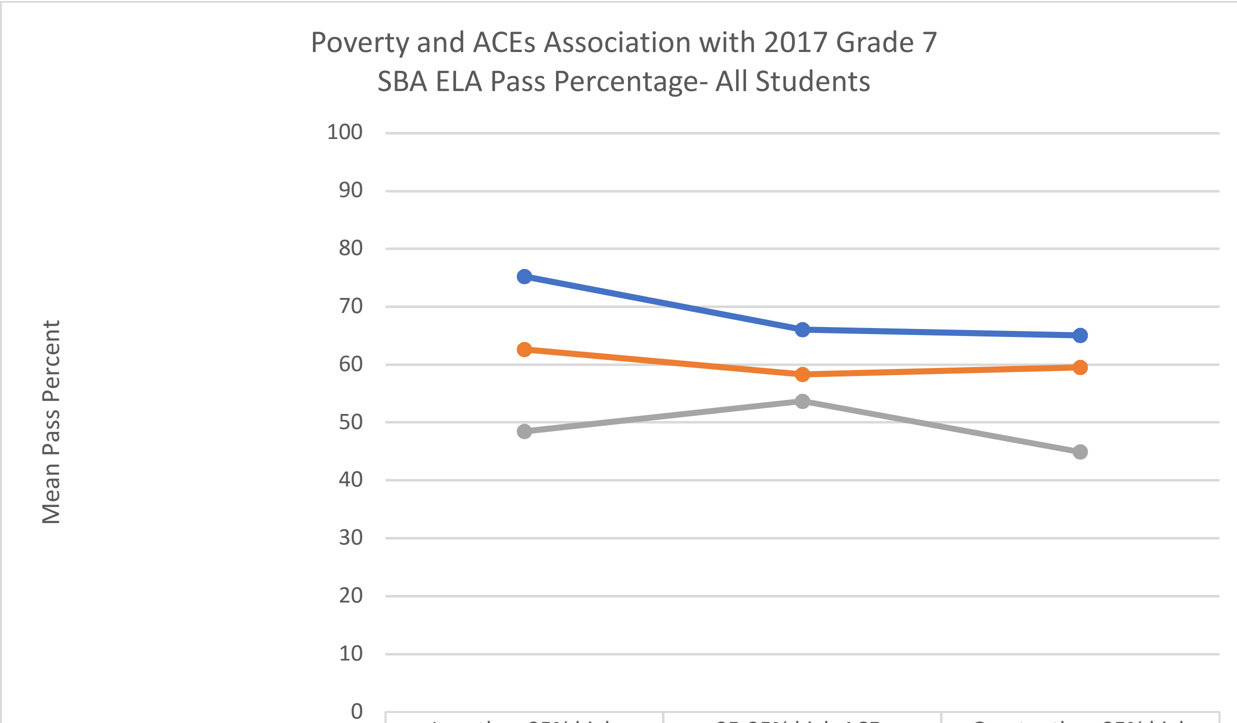
Figure 14: Grade 6 Math poverty by ACEs interaction



Poverty by ACEs Interaction: Wald Chi Sq. (4) = 21.8, p<.001

Grade 7 All Students

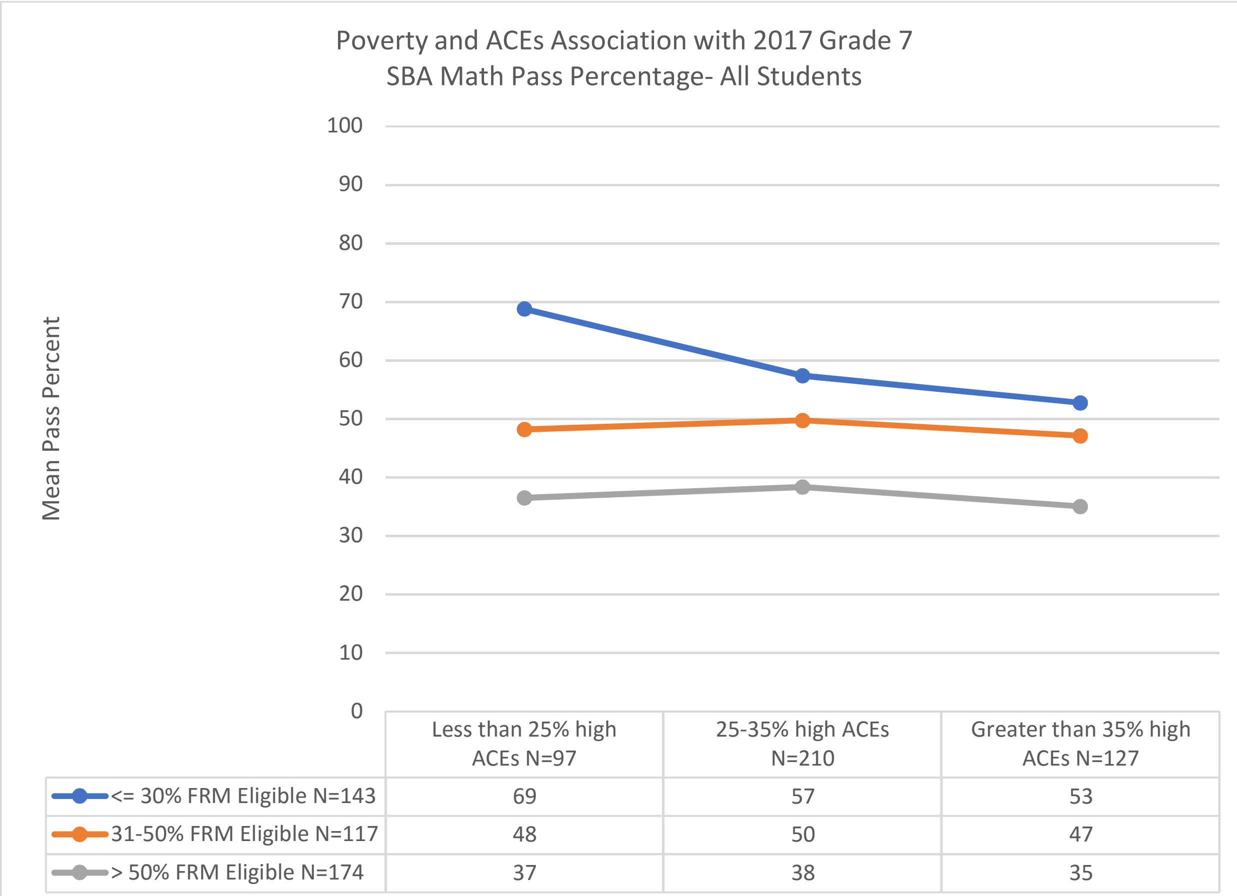
Figure 15: Grade 7 ELA poverty by ACEs interaction



	Less than 25% high ACEs N=97	25-35% high ACEs N=210	Greater than 35% high ACEs N=127
<= 30% FRM Eligible N=143	75	66	65
31-50% FRM Eligible N=117	63	58	60
> 50% FRM Eligible N=174	48	54	45

Poverty by ACEs Interaction: Wald Chi Sq. (4) = 16.3, p<.003

Figure 16: Grade 7 Math poverty by ACEs interaction



Poverty by ACEs Interaction: Wald Chi Sq. (4) = 11.6, p<.02

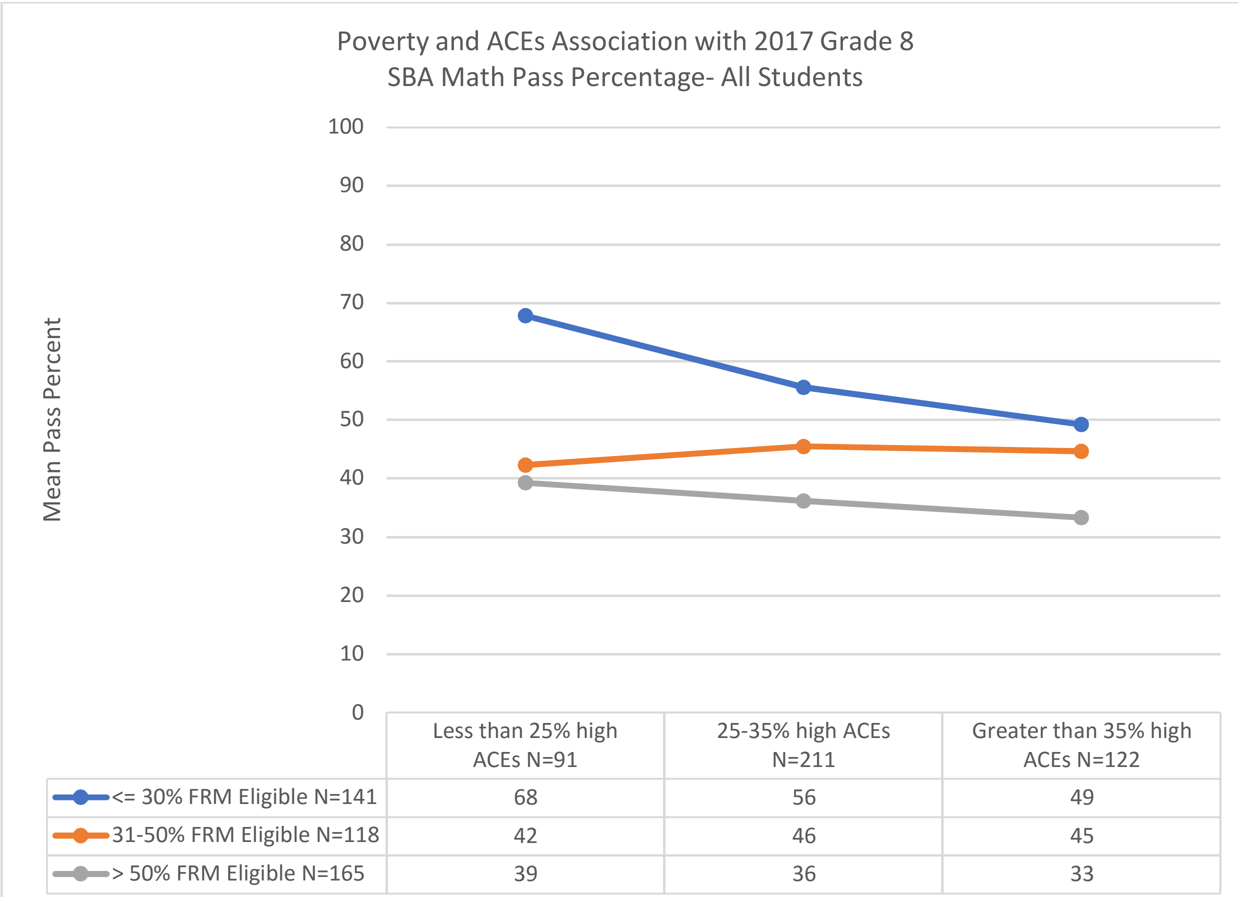
Grade 8- All Students

Grade 8: ELA and poverty- All students

	Mean Pass Percent
<= 30% FRM Eligible N=142	69
31-50% FRM Eligible N=119	57
> 50% FRM Eligible N=167	49

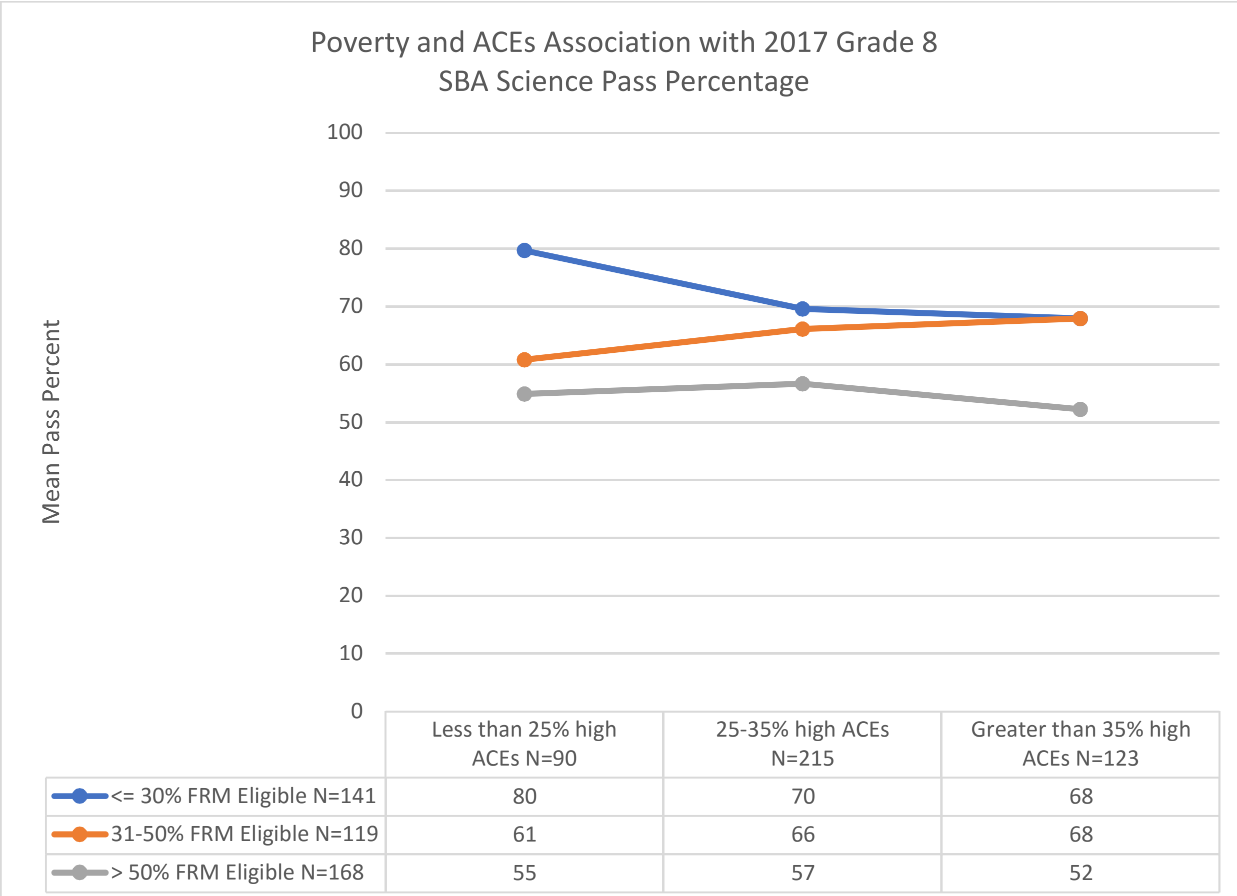
Main effect for poverty: Wald Chi Sq. (2) = 71.4, p<.001

Figure 17: Grade 8 Math poverty by ACEs interaction



Poverty by ACEs Interaction: Wald Chi Sq. (4) = 14.2, p<.007

Figure 18: Grade 8 Science poverty by ACEs interaction



Poverty by ACEs Interaction: Wald Chi Sq. (4) = 17.2, p<.002

Grade 11 All Students

Grade 11: Science and poverty- All students

	Mean Pass Percent
<= 30% FRM Eligible N=90	80
31-50% FRM Eligible N=100	69
> 50% FRM Eligible N=87	55

Main effect for poverty: Wald Chi Sq. (2) = 61.2, p<.001

Grade 11: Math and poverty- All students

	Mean Pass Percent
<= 30% FRM Eligible N=77	39
31-50% FRM Eligible N=109	31
> 50% FRM Eligible N=255	23

Main effect for poverty: Wald Chi Sq. (2) = 26.6, p<.001

Grade 10: Science (Biology) and poverty- All students

	Mean Pass Percent
<= 30% FRM Eligible N=98	77
31-50% FRM Eligible N=122	71
> 50% FRM Eligible N=117	49

Main effect for poverty: Wald Chi Sq. (2) = 98.3, p<.001

2. White Students and SBA Outcomes.

Summary of Significant Findings for School Poverty and ACEs- White Students

	ELA	Math	Science/Biology
Grade 3	Poverty main effect, ACEs main effect	Poverty main effect	---
Grade 4	Interaction	Interaction	---
Grade 5	Poverty main effect, ACEs main effect	Poverty main effect, ACEs main effect	Poverty main effect, ACEs main effect
Grade 6	Interaction	Poverty main effect, ACEs main effect	---
Grade 7	Poverty main effect	Poverty main effect, ACEs main effect	---
Grade 8	Poverty main effect	Poverty main effect, ACEs main effect	Interaction
Grade 10/11	Not analyzed due to low number of schools	Not analyzed due to low number of schools	Not analyzed due To low number of schools

The pattern of results among White students demonstrate the same general pattern of findings seen for all students. Poverty and ACEs, either through an interactive or independent influence, were highly predictive of standardized test results in all but two of the grade level analyses where poverty alone was the major predictor. As either poverty or ACEs increase, student performance on standardized tests is lower.

In comparison to the results for all students, there is a general trend for ACEs to have greater impact across the levels of poverty when there is an interaction. While we defer the details to the Discussion, what we will suggest accounts for this finding is that the powerful mediating effects of Hispanic ethnicity and ELL status on school performance and relative social risk are less influential in the White student groups which permits a more direct test of the impact of adversity among a significant proportion of Washington students.

Grade 3 White Students

Grade 3: ELA and poverty- White students

	Mean Pass Percent
<= 30% FRM Eligible N=262	71
31-50% FRM Eligible N=236	62
> 50% FRM Eligible N=314	52

Main effect for poverty: Wald Chi Sq. (2) = 133.9, p<.001

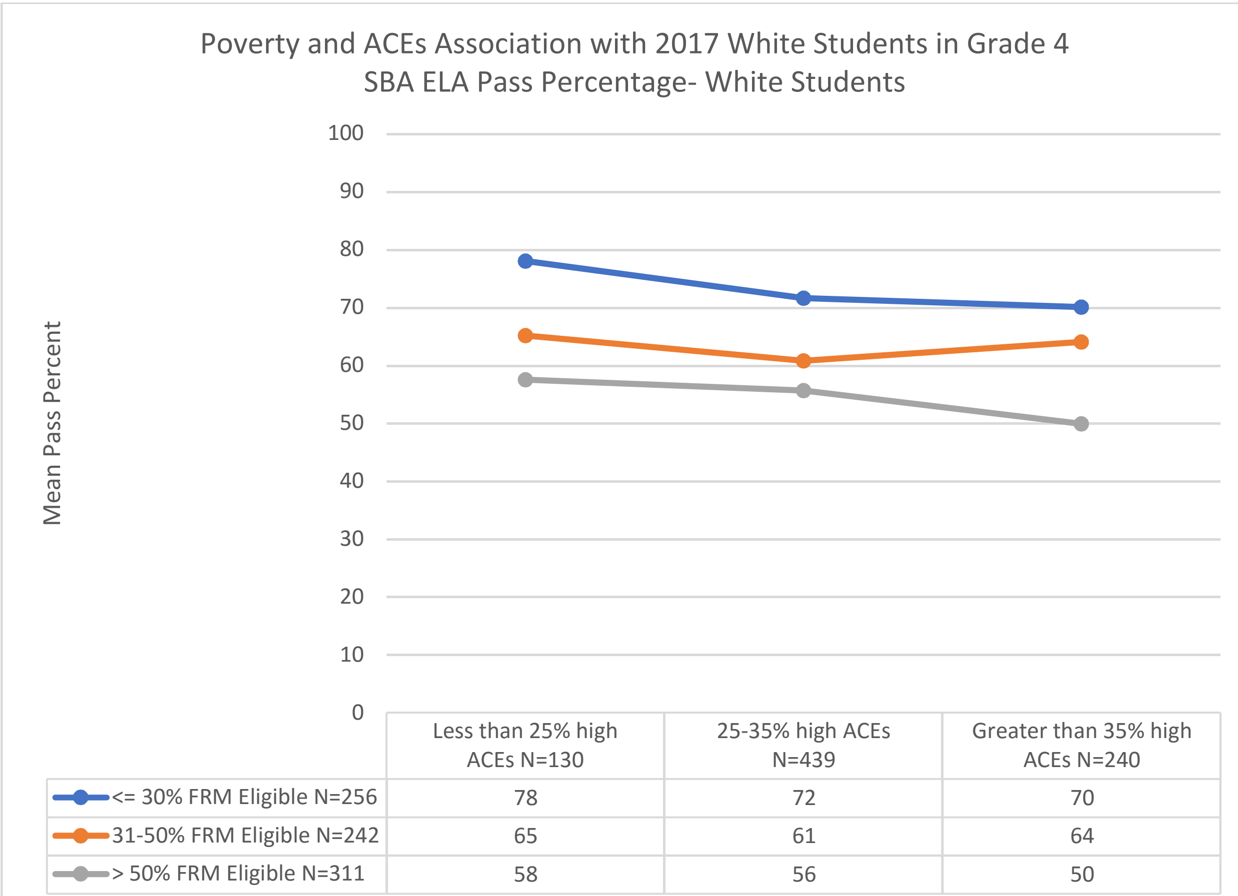
Grade 3: ELA and ACEs- White students

	Mean Pass Percent
Less than 25% high ACEs N=135	65
25-35% high ACEs N=436	61
Greater than 35% high ACEs N=241	59

Main effect for ACEs: Wald Chi Sq. (2) = 14.9, p<.001

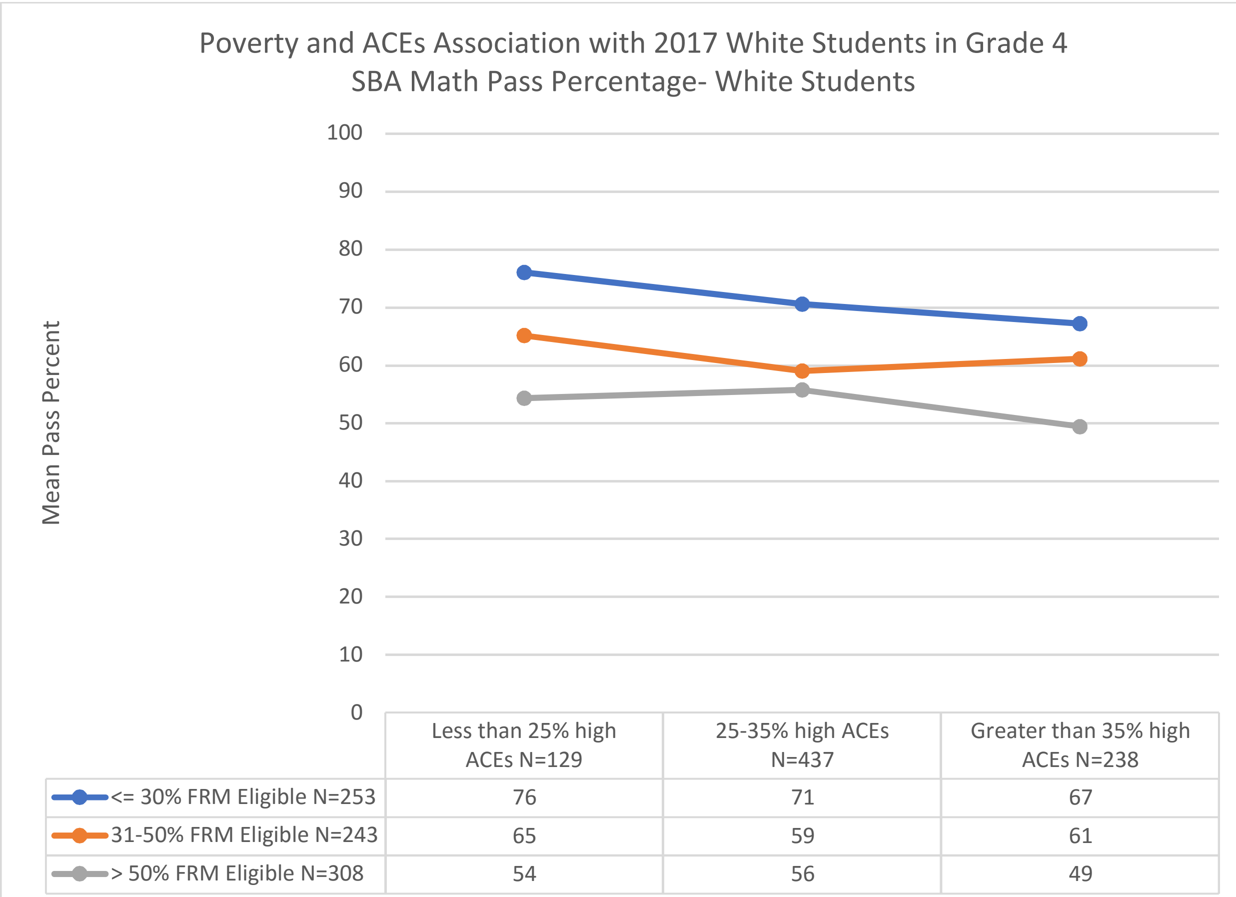
Grade 4 White Students

Figure 19: Grade 4 ELA poverty by ACEs interaction- White Students



Poverty by ACEs Interaction: Wald Chi Sq. (4) = 15.4, p<.004

Figure 20: Grade 4 Math poverty by ACEs interaction- White Students



Poverty by ACEs Interaction: Wald Chi Sq. (4) = 12.2, $p<.02$

Grade 5 White Students

Grade 5: ELA and poverty- White students

	Mean Pass Percent
<= 30% FRM Eligible N=244	82
31-50% FRM Eligible N=226	74
> 50% FRM Eligible N=287	64

Main effect for Poverty: Wald Chi Sq. (2) = 112.6, p<.001

Grade 5: ELA and ACEs- White students

	Mean Pass Percent
Less than 25% high ACEs N=131	77
25-35% high ACEs N=411	72
Greater than 35% high ACEs N=215	71

Main effect for ACEs: Wald Chi Sq. (2) = 13.3, p<.001

Grade 5: Math and poverty- White students

	Mean Pass Percent
<= 30% FRM Eligible N=253	69
31-50% FRM Eligible N=225	56
> 50% FRM Eligible N=290	46

Main effect for poverty: Wald Chi Sq. (2) = 135.7, p<.001

Grade 5: Math and ACEs- White students

	Mean Pass Percent
Less than 25% high ACEs N=131	61
25-35% high ACEs N=418	56
Greater than 35% high ACEs N=219	54

Main effect for ACEs: Wald Chi Sq. (2) = 15.9, p<.001

Grade 5: Science and poverty- White students

	Mean Pass Percent
<= 30% FRM Eligible N=234	82
31-50% FRM Eligible N=226	74
> 50% FRM Eligible N=287	64

Main effect for Poverty: Wald Chi Sq. (2) = 106.4, p<.001

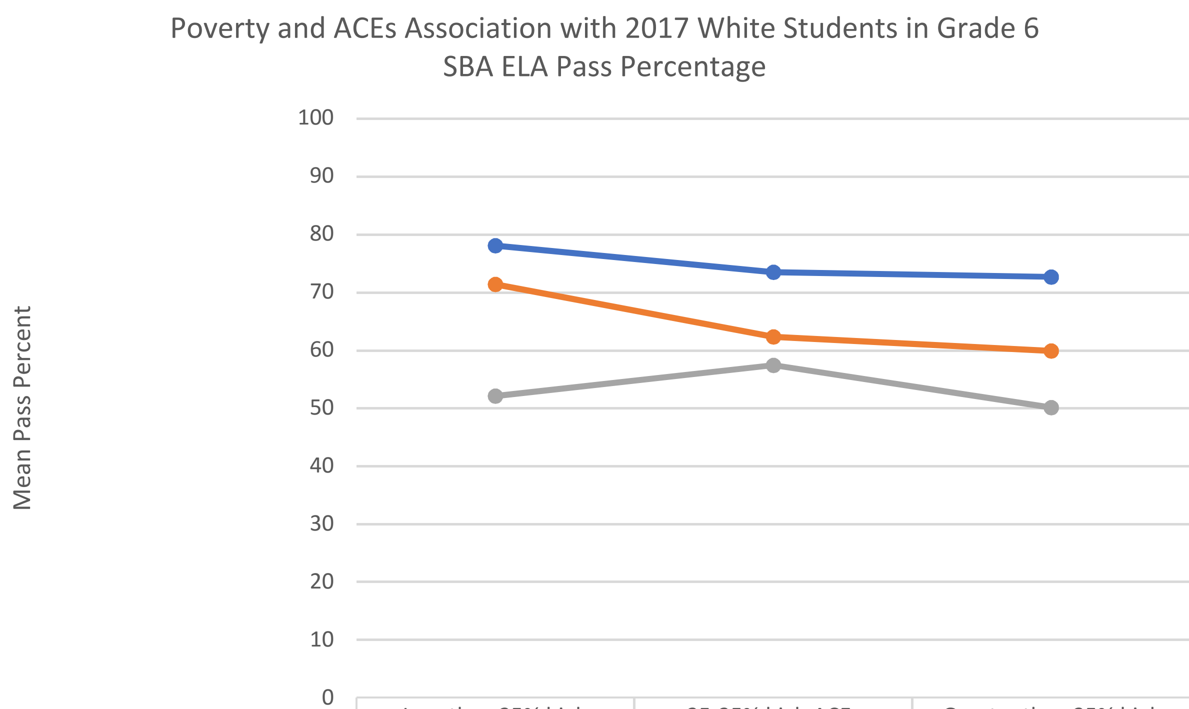
Grade 5: Science and ACEs- White students

	Mean Pass Percent
Less than 25% high ACEs N=125	77
25-35% high ACEs N=407	72
Greater than 35% high ACEs N=215	71

Main effect for ACEs: Wald Chi Sq. (2) = 15.8, p<.001

Grade 6 White Students

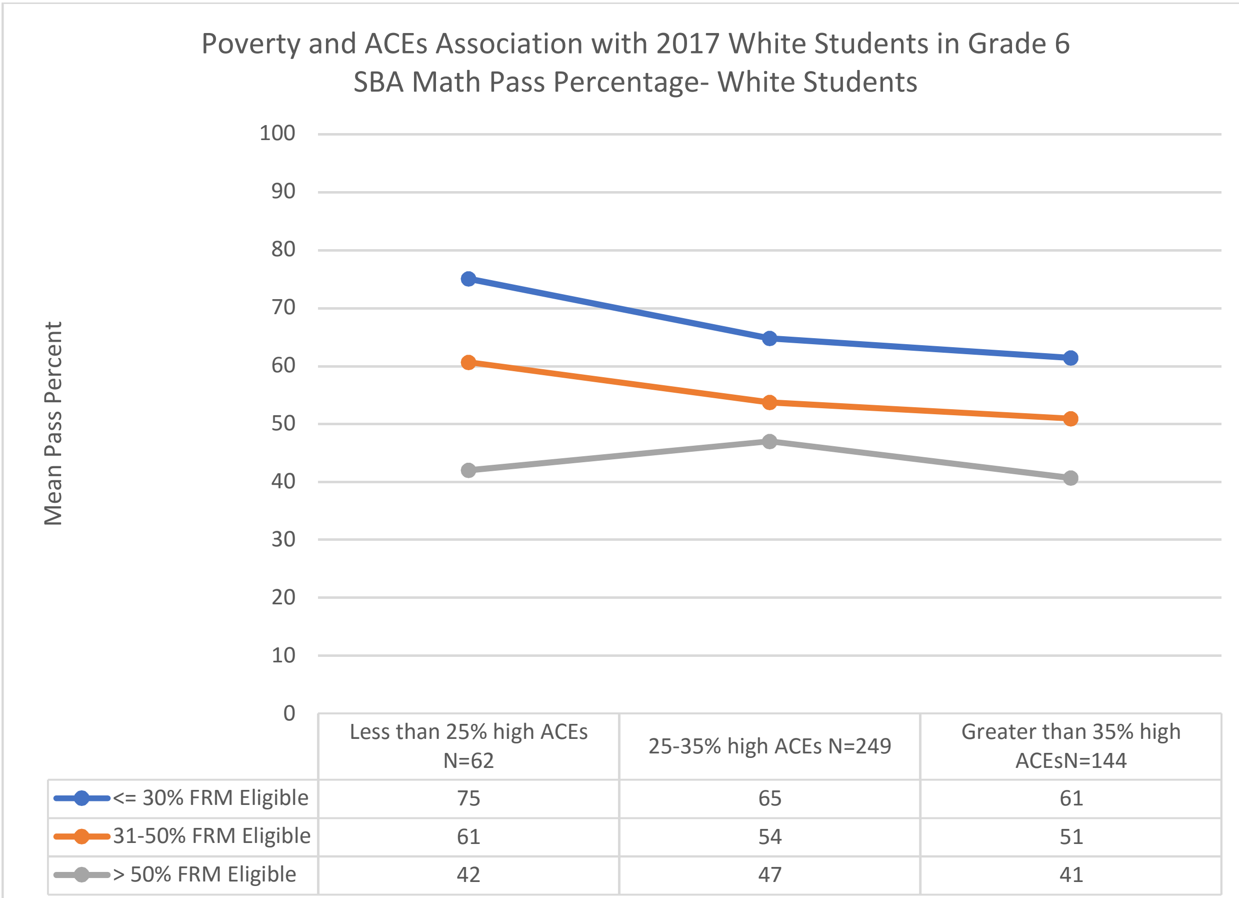
Figure 21: Grade 6 ELA poverty by ACEs interaction- White Students



	Less than 25% high ACEs N=60	25-35% high ACEs N=250	Greater than 35% high ACEs N=144
<= 30% FRM Eligible N=160	78	74	73
31-50% FRM Eligible N=143	71	62	60
> 50% FRM Eligible N=151	52	57	50

Poverty by ACEs Interaction: Wald Chi Sq. (4) = 15.6, p<.004

Figure 22: Grade 6 Math poverty by ACEs interaction- White Students



	Less than 25% high ACEs N=62	25-35% high ACEs N=249	Greater than 35% high ACEsN=144
<= 30% FRM Eligible	75	65	61
31-50% FRM Eligible	61	54	51
> 50% FRM Eligible	42	47	41

Poverty by ACEs Interaction: Wald Chi Sq. (4) = 12.2, p<.02

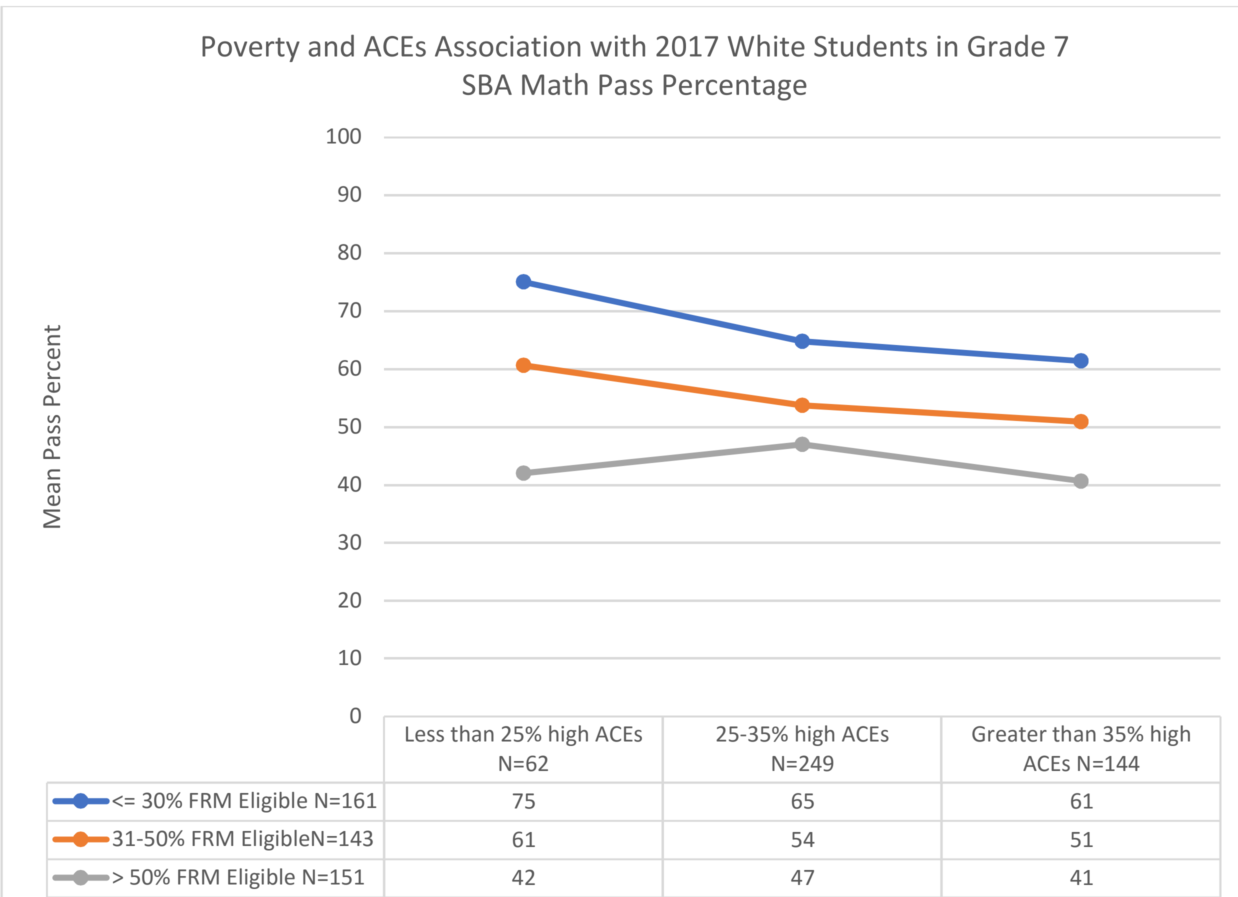
Grade 7 White Students

Grade 7: ELA and poverty- White students

	Mean Pass Percent
<= 30% FRM Eligible N=116	77
31-50% FRM Eligible N=98	65
> 50% FRM Eligible N=105	56

Main effect for Poverty: Wald Chi Sq. (2) = 94.0, p<.001

Figure 23: Grade 7 Math poverty by ACEs interaction- White Students



Poverty by ACEs Interaction: Wald Chi Sq. (4) = 12.2, p<.02

Grade 8 White Students

Grade 8: ELA and poverty- White students

	Mean Pass Percent
<= 30% FRM Eligible N=112	74
31-50% FRM Eligible N=94	61
> 50% FRM Eligible N=94	56

Main effect for Poverty: Wald Chi Sq. (2) = 52.1, p<.001

Grade 8: Math and poverty- White students

	Mean Pass Percent
<= 30% FRM Eligible N=114	64
31-50% FRM Eligible N=95	50
> 50% FRM Eligible N=94	44

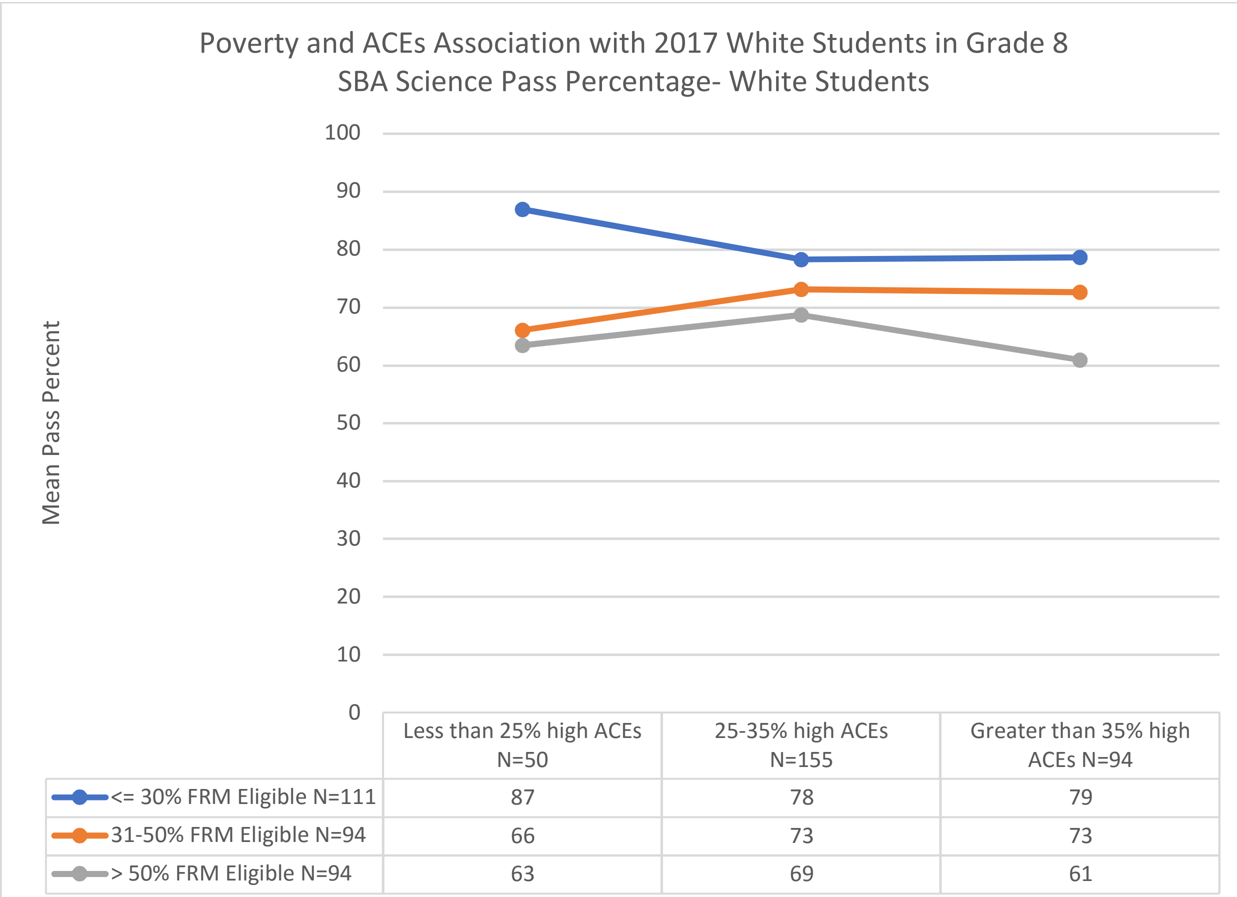
Main effect for Poverty: Wald Chi Sq. (2) = 85.9, p<.001

Grade 8: Math and ACEs- White students

	Mean Pass Percent
Less than 25% high ACEs N=52	56
25-35% high ACEs N=157	53
Greater than 35% high ACEs N=94	49

Main effect for ACEs: Wald Chi Sq. (2) = 8.0, p<.02

Figure 24: Grade 8 Science poverty by ACEs interaction- White Students



Poverty by ACEs Interaction: Wald Chi Sq. (4) = 19.4, $p<.001$

3. Hispanic Students and SBA Outcomes

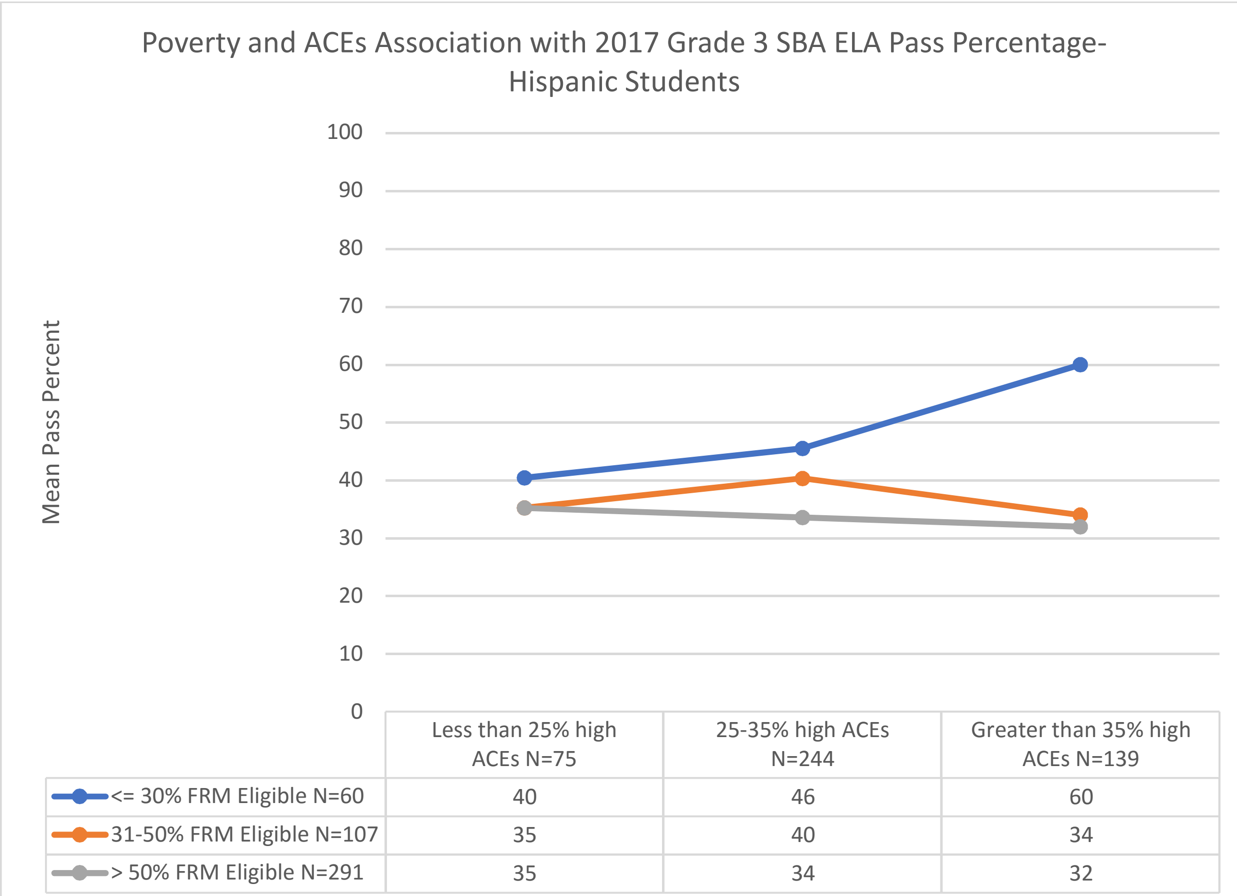
Significant findings for school poverty by community ACEs on SBA outcomes among Hispanic students

	ELA	Math	Science
Grade 3	Interaction	Interaction	---
Grade 4	Poverty main effect	Poverty main effect	---
Grade 5	Poverty main effect	Interaction	Poverty main effect
Grade 6	No significant result	Poverty main effect	---
Grade 7	Insufficient schools for analysis	Insufficient schools for analysis	---
Grade 8	Insufficient schools for analysis	Insufficient schools for analysis	Insufficient schools for analysis
Grade 10/11	Insufficient schools for analysis	Insufficient schools for analysis	Insufficient schools for analysis

Hispanic students principally demonstrate the negative impact of school poverty on their academic success. In two of the four grade levels we could evaluate, we found a significant but distinctive interaction effect where increasing ACEs in the lowest poverty schools is an indicator of increased academic success. We caution this is a counter-intuitive set of results that likely are a byproduct of the enrollment characteristics of students in the low poverty, higher ACEs groups. On review, we determined that the Hispanic students in the low poverty, higher ACEs groups attend schools with significantly lower percent enrollment by ELL students. For example, for Grade 3 SBA results, as ACEs levels increased in the lowest poverty schools, ELL enrollment went from 25% to 17% to 13%. A similar pattern of ELL enrollment across ACEs groups was found for the Grade 5 interaction. Given the known dramatic effect of ELL status on standardized test results, we believe that differential ELL enrollment provides an explanation for the apparent improvement in performance with increasing ACEs. This issue also serves as a useful caution about group composition effects on outcomes and the need for careful interpretation. We present these interaction results as examples of the limits of working with administrative data and do not consider them to be valid interaction effects.

Hispanic Grade 3

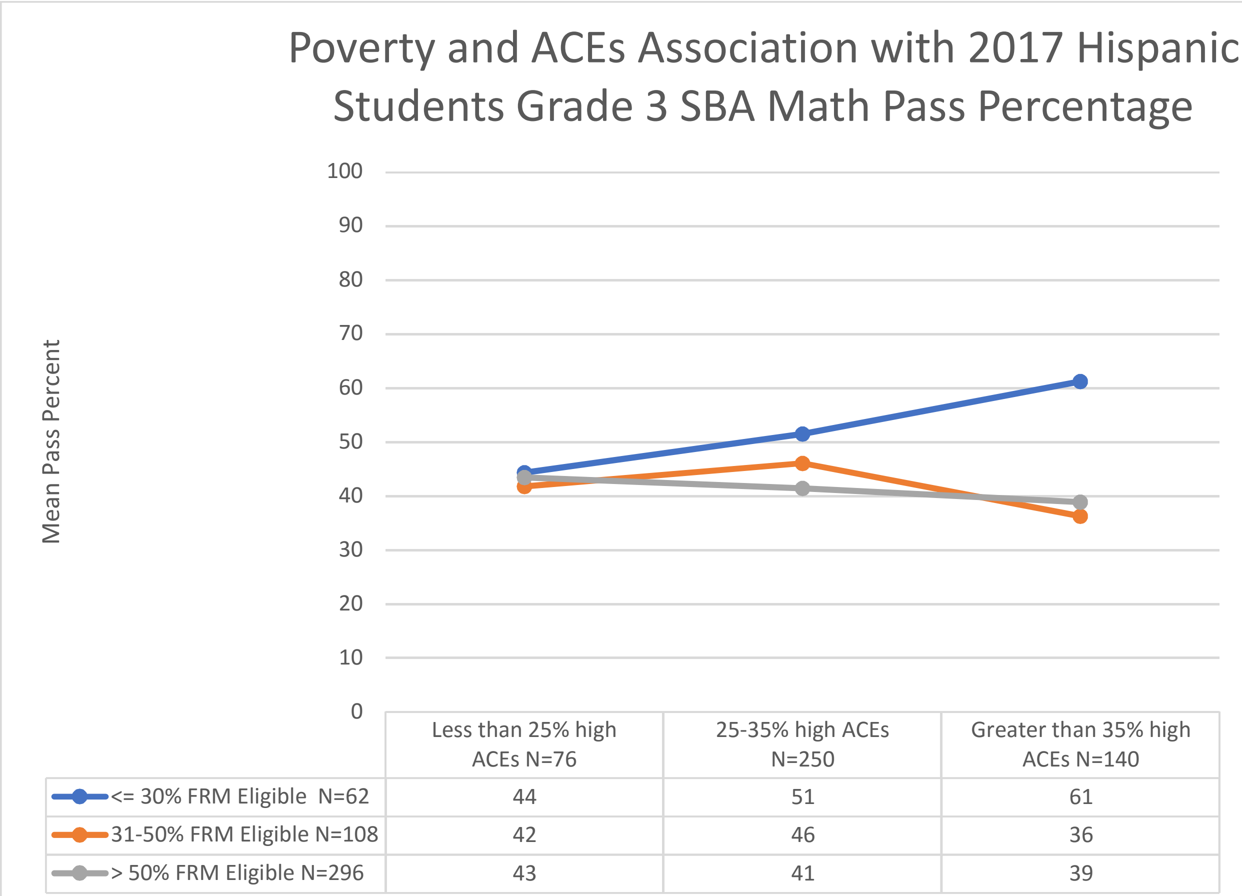
Figure 25: Grade 3 ELA poverty by ACEs interaction- Hispanic Students



Poverty by ACEs Interaction: Wald Chi Sq. (4) = 23.4 p<.001

Grade 3 Hispanic Students

Figure 26: Grade 3 Math poverty by ACEs interaction- Hispanic Students



Poverty by ACEs Interaction: Wald Chi Sq. (4) = 24.7 p<.001

Grade 4 Hispanic

Grade 4: ELA and poverty- Hispanic students

	Mean Pass Percent
<= 30% FRM Eligible N=71	51
31-50% FRM Eligible N=117	42
> 50% FRM Eligible N=283	37

Main effect for Poverty: Wald Chi Sq. (2) = 22.5, $p<.001$

Grade 4: Math and poverty- Hispanic students

	Mean Pass Percent
<= 30% FRM Eligible N=70	48
31-50% FRM Eligible N=115	38
> 50% FRM Eligible N=282	38

Main effect for Poverty: Wald Chi Sq. (2) = 11.8, $p<.003$

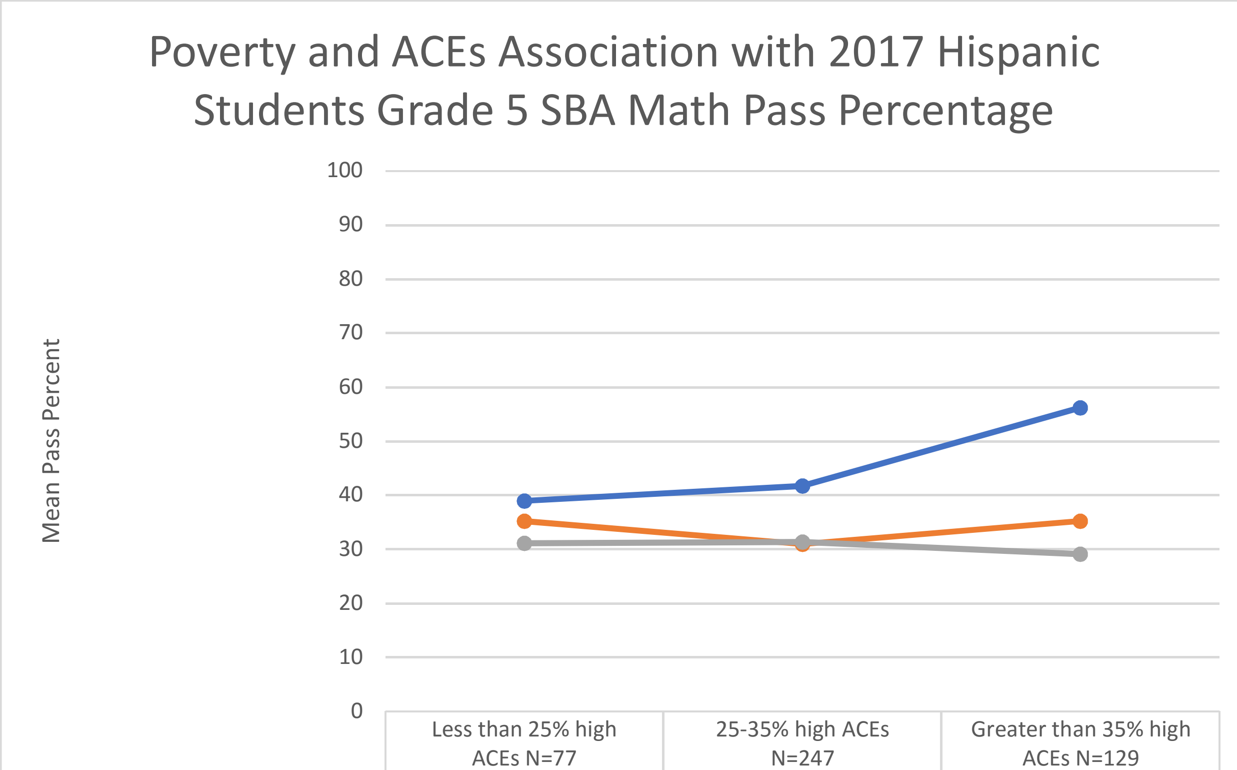
Grade 5 Hispanic

Grade 5: Math and poverty- Hispanic students

	Mean Pass Percent
<= 30% FRM Eligible N=69	54
31-50% FRM Eligible N=111	44
> 50% FRM Eligible N=277	41

Main effect for Poverty: Wald Chi Sq. (2) = 23.9, $p<.001$

Figure 27: Grade 5: Math poverty by ACEs interaction- Hispanic Students



	Less than 25% high ACEs N=77	25-35% high ACEs N=247	Greater than 35% high ACEs N=129
<= 30% FRM Eligible N=70	39	42	56
31-50% FRM Eligible N=111	35	31	35
> 50% FRM Eligible N=272	31	31	29

Poverty by ACEs Interaction: Wald Chi Sq. (4) = 14.0 p<.007

Grade 5: Science and poverty- Hispanic students

	Mean Pass Percent
<= 30% FRM Eligible N=51	52
31-50% FRM Eligible N=105	51
> 50% FRM Eligible N=252	45

Main effect for Poverty: Wald Chi Sq. (2) = 9.9, p<.007

Grade 6 Hispanic

Grade 6: Math and poverty- Hispanic students

	Mean Pass Percent
<= 30% FRM Eligible N=76	43
31-50% FRM Eligible N=85	39
> 50% FRM Eligible N=143	28

Main effect for Poverty: Wald Chi Sq. (2) = 32.7, p<.007

4. 'Not Low Income' Students and SBA Outcomes

In this section and the next, OSPI's newer reporting structure provides the opportunity to examine how the collective economic status of the school influences student outcomes distinct from the students' individual economic resources. Specifically, we examine in this section how students who are not determined to be low income progress as the level of poverty in the school changes. In the next section, we examine the potential effects of the schools' poverty level on low income students.

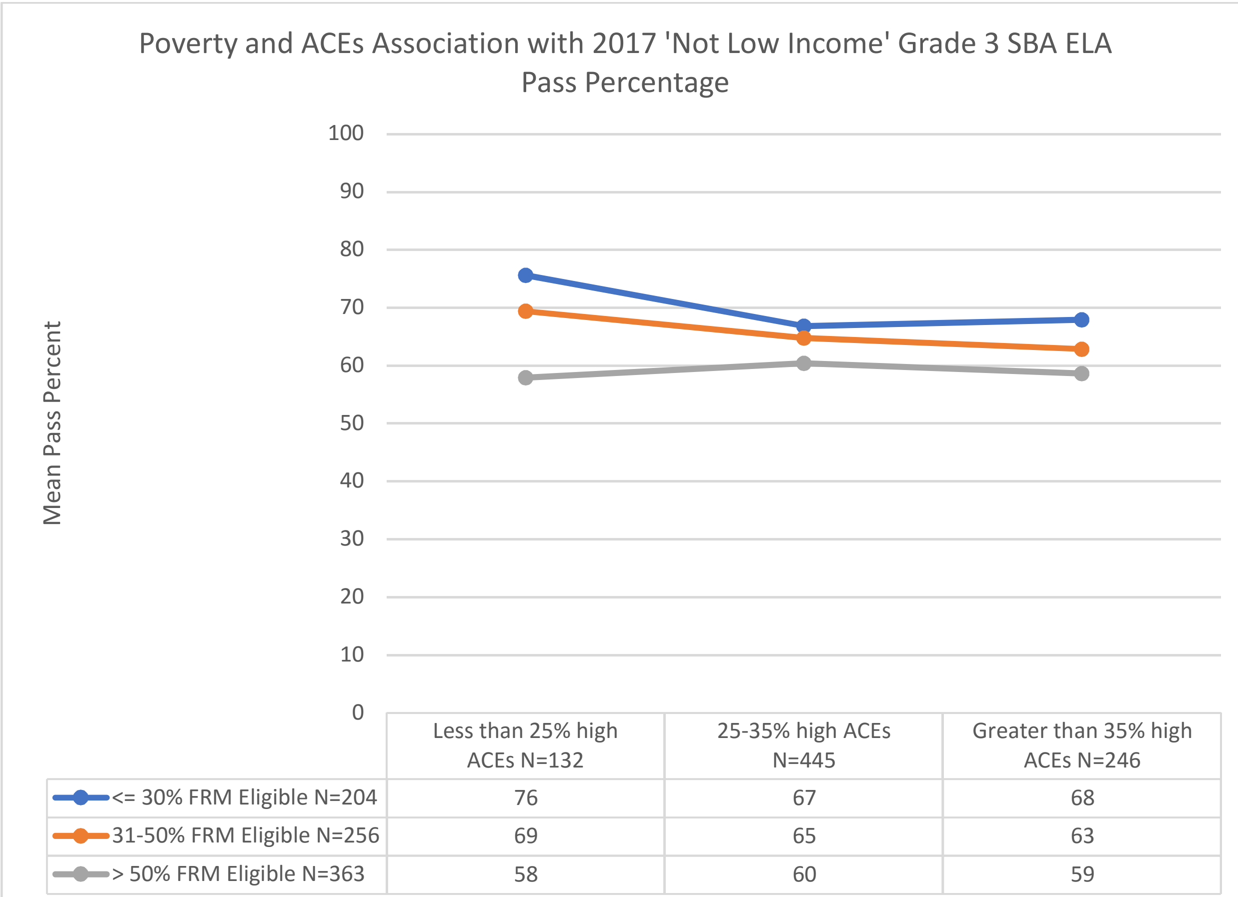
For students who are not individually identified as low income, we found that the poverty level of the schools and the percent of community adults with high ACEs were both predictive of school differences in academic success through grade 8. We concluded that poverty as a school characteristic was a significant effect on student performance even when limited income was not an individual concern. Further, while the impact of community ACEs less pronounced, students in schools with lower levels of overall poverty showed the greatest effect for community ACEs suggesting that when poverty is less an influence at the school or individual level, the effects of ACEs may more clearly be a driver for performance differences across schools

Significant findings for school poverty by community ACEs on SBA outcomes in non-low income students

	ELA	Math	Science/Biology
Grade 3	Interaction	Interaction	---
Grade 4	Poverty main effect, ACEs main effect	Poverty main effect	---
Grade 5	Poverty main effect, ACEs main effect	Poverty main effect, ACEs main effect	Poverty main effect, ACEs main effect
Grade 6	Poverty main effect, ACEs main effect	Interaction	---
Grade 7	Interaction	Poverty main effect, ACEs main effect	---
Grade 8	Interaction	Poverty main effect	Interaction
Grade 10/11	Insufficient schools for analysis	Insufficient schools for analysis	Insufficient schools for analysis

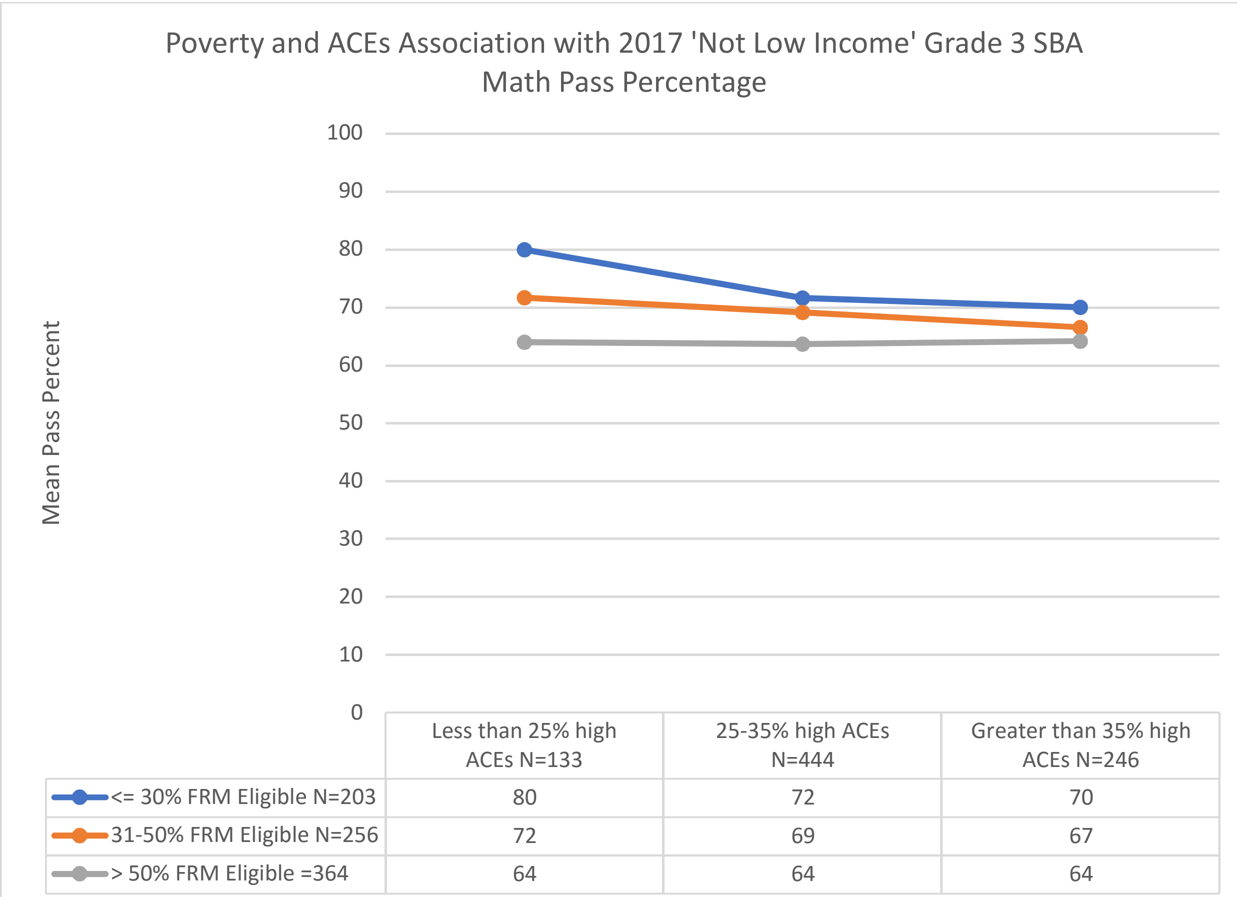
Grade 3 ‘Not Low Income’ Students

Figure 28: Grade 3 ELA poverty by ACEs interaction- Not Low-Income Students



Poverty by ACEs Interaction: Wald Chi Sq. (4) = 13.5, $p<.009$

Figure 29: Grade 3 Math poverty by ACEs interaction- Not Low-Income Students



Poverty by ACEs Interaction: Wald Chi Sq. (4) = 11.4, p<.02

Grade 4 'Not Low Income' Students

Grade 4: ELA and poverty- 'Not Low Income' students

	Mean Pass Percent
<= 30% FRM Eligible N=199	74
31-50% FRM Eligible N=261	67
> 50% FRM Eligible N=361	62

Main effect for Poverty: Wald Chi Sq. (2) = 50.8, p<.001

Grade 4: ELA and ACEs- 'Not Low Income' students

	Mean Pass Percent
Less than 25% high ACEs N=126	70
25-35% high ACEs N=447	66
Greater than 35% high ACEs N=248	67

Main effect for ACEs: Wald Chi Sq. (2) = 10.5, p<.005

Grade 4: Math and poverty- 'Not Low Income' students

	Mean Pass Percent
<= 30% FRM Eligible N=195	51
31-50% FRM Eligible N=262	31
> 50% FRM Eligible N=365	16

Main effect for Poverty: Wald Chi Sq. (2) = 312.8, p<.001

Grade 5 'Not Low Income' Students

Grade 5: ELA and poverty- 'Not Low Income' students

	Mean Pass Percent
<= 30% FRM Eligible N=188	76
N=25231-50% FRM Eligible	71
> 50% FRM Eligible N=351	65

Main effect for Poverty: Wald Chi Sq. (2) = 50.6, p<.001

Grade 5: ELA and ACEs- ‘Not Low Income’ students

	Mean Pass Percent
Less than 25% high ACEs N=132	64
25-35% high ACEs N=422	58
Greater than 35% high ACEs N=237	58

Main effect for ACEs: Wald Chi Sq. (2) = 14.8, p<.001

Grade 5: Math and ACEs- ‘Not Low Income’ students

	Mean Pass Percent
<= 30% FRM Eligible N=188	67
31-50% FRM Eligible N=253	60
> 50% FRM Eligible N=347	53

Main effect for Poverty: Wald Chi Sq. (2) = 54.6, p<.001

Grade 5: Math and ACEs- ‘Not Low Income’ students

	Mean Pass Percent
Less than 25% high ACEs N=131	64
25-35% high ACEs N=424	58
Greater than 35% high ACEs N=233	58

Main effect for ACEs: Wald Chi Sq. (2) = 17.0, p<.001

Grade 5: Science and poverty- ‘Not Low Income’ students

	Mean Pass Percent
<= 30% FRM Eligible N=183	80
31-50% FRM Eligible N=252	75
> 50% FRM Eligible N=352	70

Main effect for Poverty: Wald Chi Sq. (2) = 49.9, p<.001

Grade 5: Science and ACEs- 'Not Low Income' students

	Mean Pass Percent
Less than 25% high ACEs N=131	78
25-35% high ACEs N=421	73
Greater than 35% high ACEs N=235	74

Main effect for Poverty: Wald Chi Sq. (2) = 19.5, p<.001

Grade 6 Not Low Income

Grade 6: ELA and poverty- 'Not Low Income' students

	Mean Pass Percent
<= 30% FRM Eligible N=142	75
31-50% FRM Eligible N=161	67
> 50% FRM Eligible N=182	62

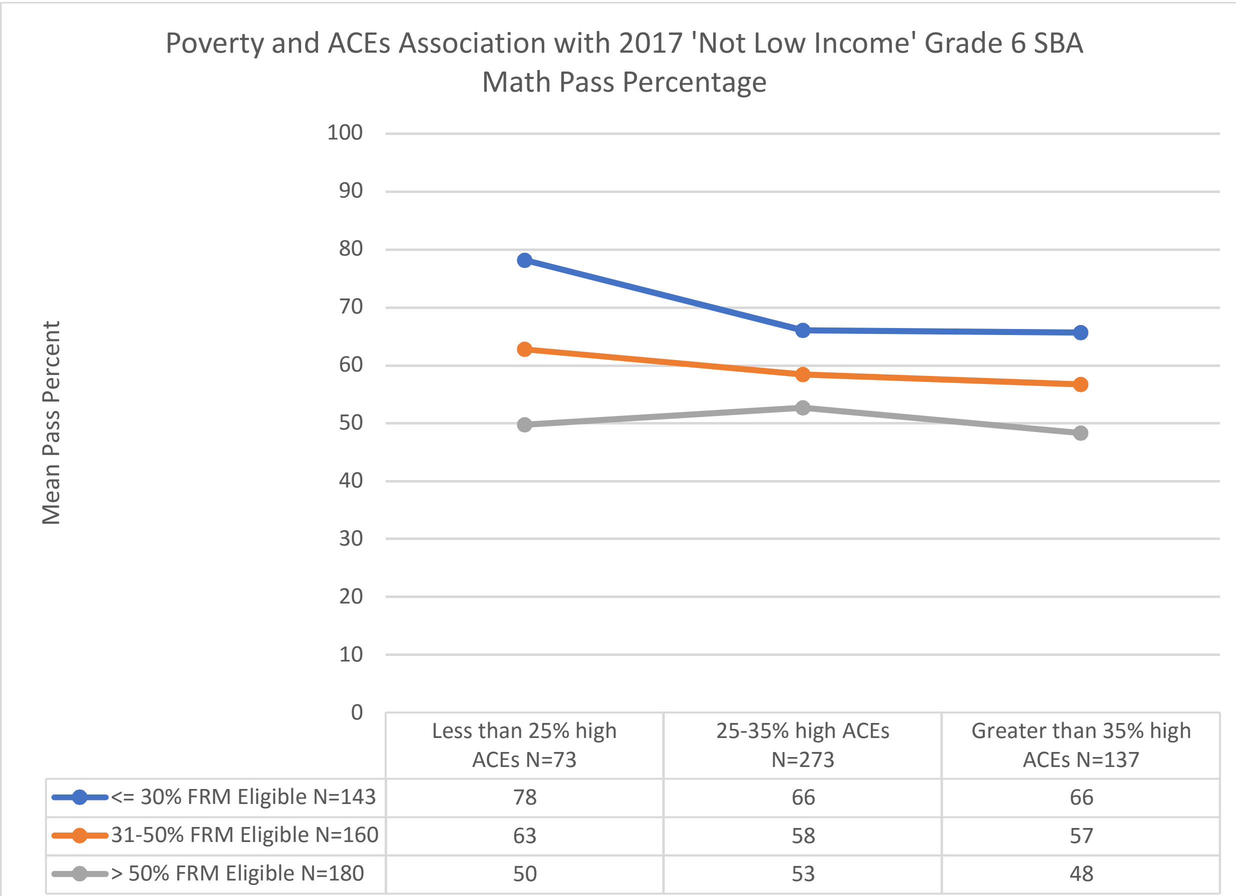
Main effect for Poverty: Wald Chi Sq. (2) = 47.1, p<.001

Grade 6: ELA and ACEs- 'Not Low Income' students

	Mean Pass Percent
Less than 25% high ACEs N=75	72
25-35% high ACEs N=273	67
Greater than 35% high ACEs N=137	65

Main effect for ACEs: Wald Chi Sq. (2) = 12.2, p<.001

Figure 30: Grade 6 Math poverty by ACEs interaction- Not Low-income Students

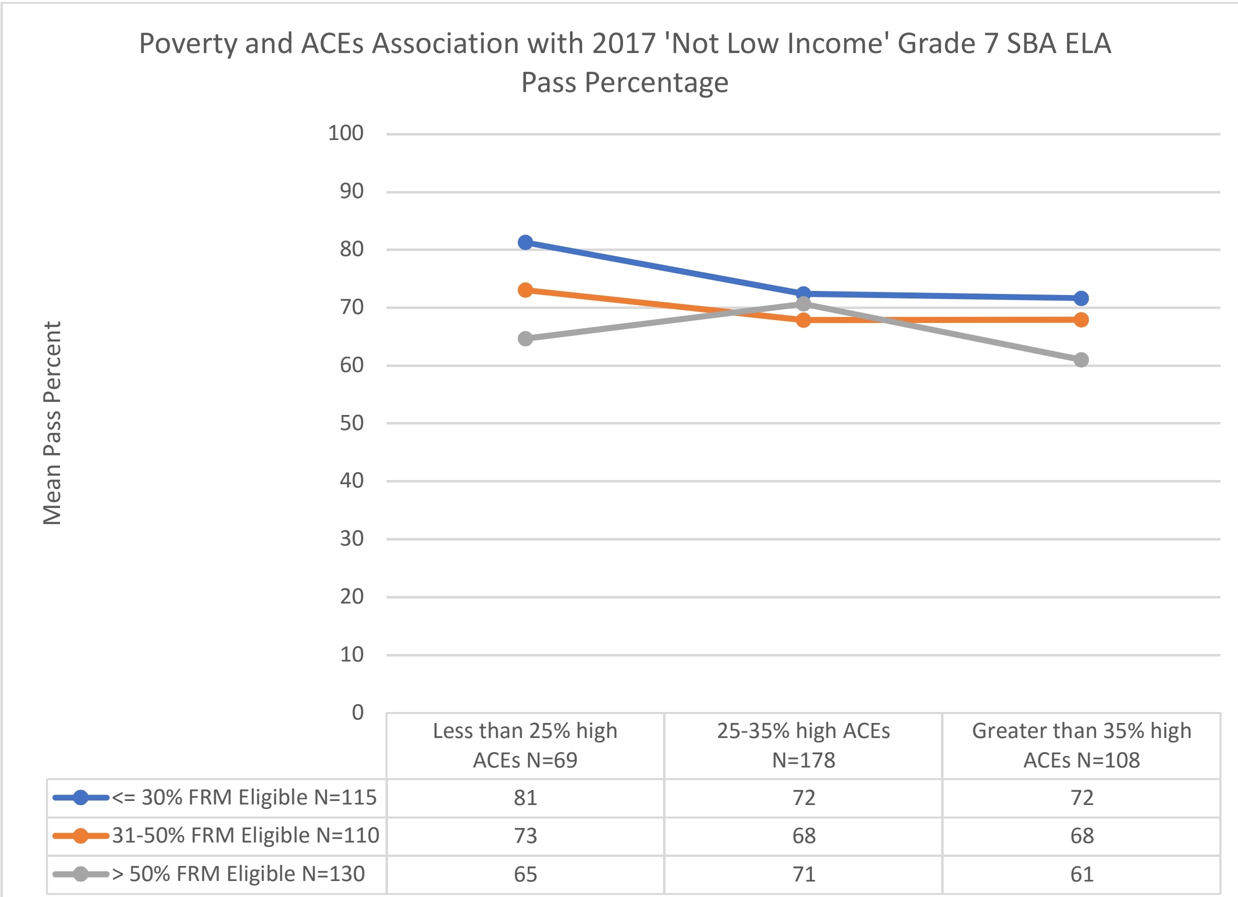


	Less than 25% high ACEs N=73	25-35% high ACEs N=273	Greater than 35% high ACEs N=137
<= 30% FRM Eligible N=143	78	66	66
31-50% FRM Eligible N=160	63	58	57
> 50% FRM Eligible N=180	50	53	48

Poverty by ACEs Interaction: Wald Chi Sq. (4) = 14.2, p<.007

Grade 7 Not Low Income

Figure 31: Grade 7 ELA poverty by ACEs interaction- Not Low-Income Students



Poverty by ACEs Interaction: Wald Chi Sq. (4) = 20.0 p<.001

Grade 7: Math and poverty- 'Not Low Income' students

	Mean Pass Percent
<= 30% FRM Eligible N=115	66
31-50% FRM Eligible N=110	59
> 50% FRM Eligible N=130	53

Main effect for Poverty: Wald Chi Sq. (2) = 33.0, p<.001

Grade 7: Math and ACEs- 'Not Low Income' students

	Mean Pass Percent
Less than 25% high ACEs N=68	63
25-35% high ACEs N=178	60
Greater than 35% high ACEs N=109	55

Main effect for ACEs: Wald Chi Sq. (2) = 10.8, p<.005

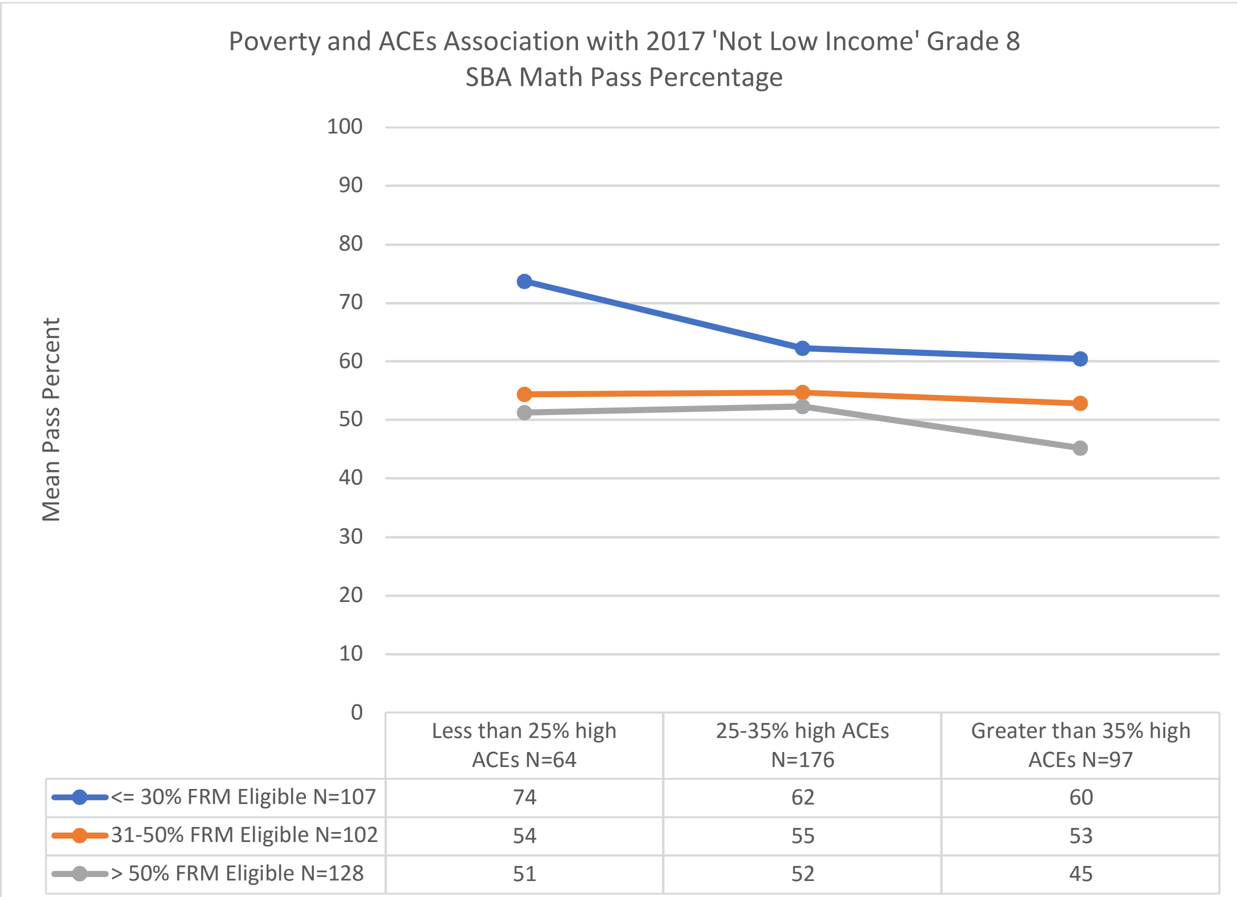
Grade 8 Not Low Income

Grade 8: ELA and poverty- 'Not Low Income' students

	Mean Pass Percent
<= 30% FRM Eligible N=108	74
31-50% FRM Eligible N=104	64
> 50% FRM Eligible N=128	64

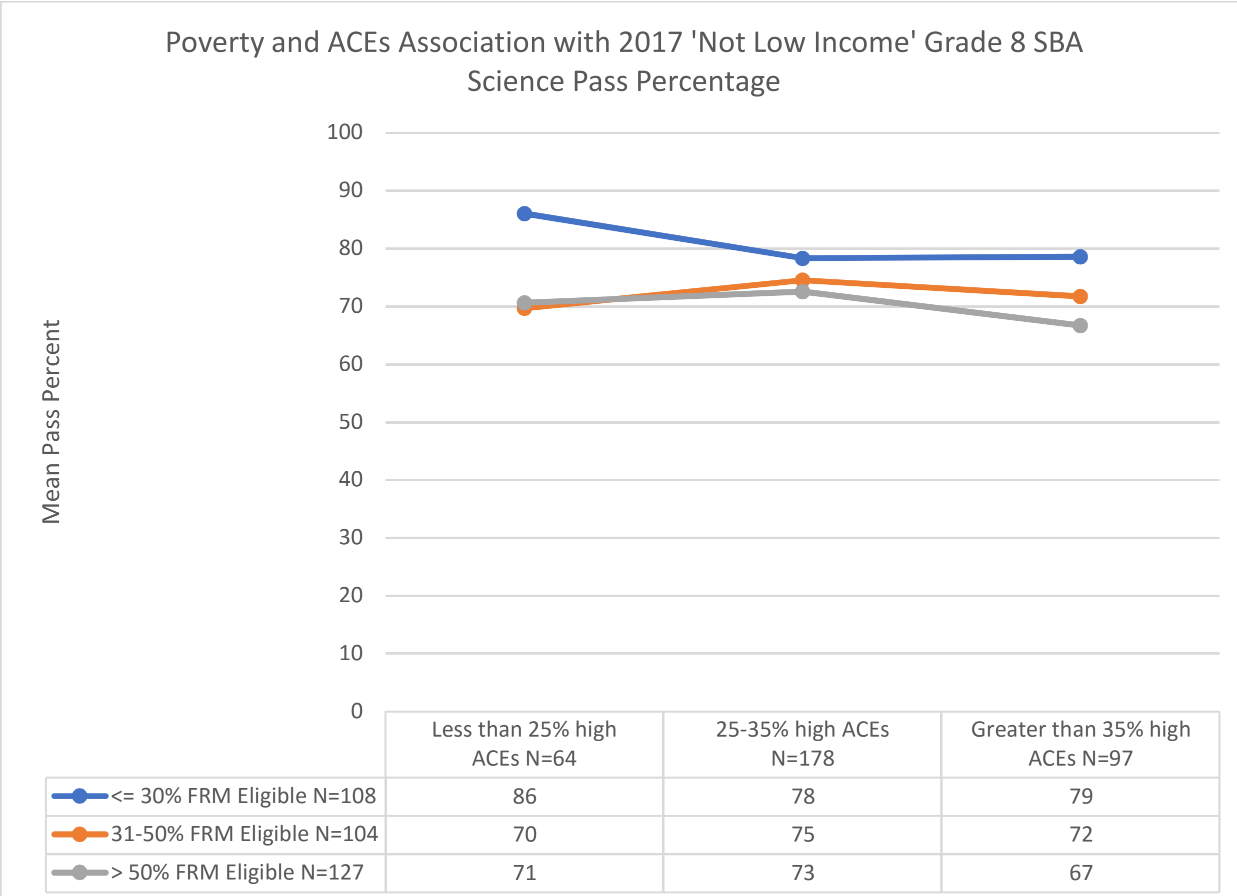
Main effect for Poverty: Wald Chi Sq. (2) = 41.8, p<.001

Figure 32:Grade 8 Math poverty by ACES- Not low income



Poverty by ACEs Interaction: Wald Chi Sq. (4) = 10.6, p<.03

Figure 33: Grade 8 Science poverty by ACE interaction- Not low income



Poverty by ACEs Interaction: Wald Chi Sq. (4) = 14.5, p<.005

5. Low Income Students and SBA Outcomes

Significant findings for school poverty by community ACEs on SBA outcomes in low income students

	ELA	Math	Science/Biology
Grade 3	Poverty main effect	Poverty main effect	---
Grade 4	Poverty main effect	Poverty main effect	---
Grade 5	Poverty main effect	Poverty main effect	Poverty main effect
Grade 6	Interaction***	Poverty main effect	---
Grade 7	Insufficient schools for analysis	Insufficient schools for analysis	---
Grade 8	Insufficient schools for analysis	Insufficient schools for analysis	Insufficient schools for analysis
Grade 10/11	Insufficient schools for analysis	Insufficient schools for analysis	Insufficient schools for analysis

*** Unanticipated impact for ACEs

We found for low income students a consistent finding that as the level of school poverty increases, standardized test results for low income students in those schools was lower. Like with the non-low income students, it is helpful to recall that we are describing the impact of the school context rather than the specific income status of the individual students. In the table above, we note that the grade 6 interaction effect for ELA is at odds with the general trend in findings such that increasing ACEs appear to be associated with better performance in schools with the lowest levels of poverty. We do not believe this is a valid result but rather a group composition effect. Specifically, when we restrict to low income students, the number of low income schools with high community ACEs is too small to test the interaction. We present this finding because one of the conclusions we present in this report is the need for caution in interpreting resulting using administrative data where we can’t control for equal distribution of cases across our conditions. The distribution of schools within poverty and community ACEs was not a concern and testing for the main effects of poverty and ACEs still produced valid statistical tests.

Grade 3 Low Income

Grade 3: ELA and poverty- 'Low Income' students

	Mean Pass Percent
<= 30% FRM Eligible N=173	42
31-50% FRM Eligible N=255	41
> 50% FRM Eligible N=393	37

Main effect for Poverty: Wald Chi Sq. (2) = 10.1, $p<.006$

Grade 3: Math and poverty- 'Low Income' students

	Mean Pass Percent
<= 30% FRM Eligible N=174	48
31-50% FRM Eligible N=256	44
> 50% FRM Eligible N=392	42

Main effect for Poverty: Wald Chi Sq. (2) = 8.8, $p<.01$

Grade 4 Low Income Students

Grade 4: ELA and poverty- 'Low Income' students

	Mean Pass Percent
<= 30% FRM Eligible N=170	48
31-50% FRM Eligible N=255	41
> 50% FRM Eligible N=383	39

Main effect for Poverty: Wald Chi Sq. (2) = 27.9, $p<.001$

Grade 4: Math and poverty- ‘Low Income’ students

	Mean Pass Percent
<= 30% FRM Eligible N=169	45
31-50% FRM Eligible N=256	41
> 50% FRM Eligible N=385	39

Main effect for Poverty: Wald Chi Sq. (2) = 11.7, p<.03

Grade 5 Low Income

Grade 5: ELA and poverty- ‘Low Income’ students

	Mean Pass Percent
<= 30% FRM Eligible N=171	49
31-50% FRM Eligible N=249	47
> 50% FRM Eligible N=376	42

Main effect for Poverty: Wald Chi Sq. (2) = 17.3, p<.001

Grade 5: ELA and poverty- ‘Low Income’ students

	Mean Pass Percent
<= 30% FRM Eligible N=175	40
31-50% FRM Eligible N=250	36
> 50% FRM Eligible N=372	32

Main effect for Poverty: Wald Chi Sq. (2) = 20.2, p<.001

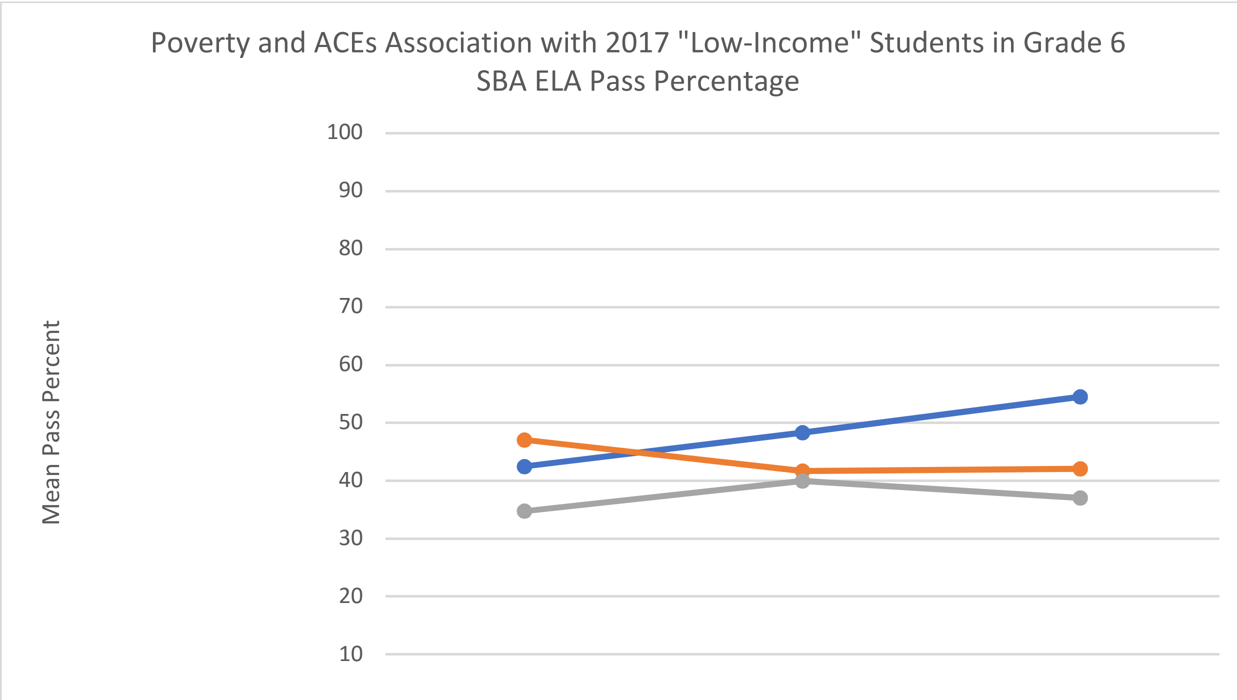
Grade 5: Math and poverty- ‘Not Low Income’ students

	Mean Pass Percent
<= 30% FRM Eligible n=169	56
31-50% FRM Eligible n=249	54
> 50% FRM Eligible n=372	49

Main effect for Poverty: Wald Chi Sq. (2) = 14.9, p<.001

Grade 6 Low Income

Figure 34: Grade 6 ELA poverty by ACEs interaction- Low Income Students



	Less than 25% high ACEs N=74	25-35% high ACEs N=261	Greater than 35% high ACEs N=136
<= 30% FRM Eligible N=123	42	48	54
31-50% FRM Eligible N=159	47	42	42
> 50% FRM Eligible N=189	35	40	37

Poverty by ACEs Interaction: Wald Chi Sq. (4) = 13.9 p<.008

Grade 6: Math and poverty- 'Low Income' students

	Mean Pass Percent
<= 30% FRM Eligible N=124	40
31-50% FRM Eligible N=158	37
> 50% FRM Eligible N=188	29

Main effect for Poverty: Wald Chi Sq. (2) = 32.3, p<.001

6. Not Special Education Enrolled and SBA Outcomes

The next two sections present findings for student groups enrolled in special education (SPED) or not enrolled in SPED. While we were able to conduct analyses for early primary grades, the distribution of schools resulted in analyses where at least one poverty by ACEs cell had less than minimally acceptable counts of schools. This again indicates the caution needed in using administrative data for these types of analyses.

	ELA	Math	Science/Biology
Grade 3	Poverty main effect, ACEs main effect	Poverty main effect	---
Grade 4	Poverty main effect	Poverty main effect	---
Grade 5	Poverty main effect	Poverty main effect	Poverty main effect
Grade 6	Insufficient schools for analysis	Insufficient schools for analysis	---
Grade 7	Insufficient schools for analysis	Insufficient schools for analysis	---
Grade 8	Insufficient schools for analysis	Insufficient schools for analysis	Insufficient schools for analysis
Grade 10/11	Insufficient schools for analysis	Insufficient schools for analysis	Insufficient schools for analysis

Schools reporting 2016-2017 SBA results for students not enrolled in special education were sufficient in numbers to permit analyses for grades 3-5 but not later grades. Overall, we demonstrated that as schools poverty levels increased, performance on standardized tests was lower for students not enrolled in SPED. In one instance, we also documented a main effect for ACEs.

Grade 3 Not Special Education (SPED) Students

Grade 3: ELA and poverty- Not SPED Enrolled students

	Mean Pass Percent
<= 30% FRM Eligible N=152	64
31-50% FRM Eligible N=143	47
> 50% FRM Eligible N=209	32

Main effect for Poverty: Wald Chi Sq. (2) = 96.3, p<.001

Grade 3: Math and poverty- Not SPED Enrolled students

	Mean Pass Percent
<= 30% FRM Eligible N=149	73
N=13931-50% FRM Eligible	65
> 50% FRM Eligible N=222	54

Main effect for Poverty: Wald Chi Sq. (2) = 92.8, p<.001

Grade 4 Not Special Education Students

Grade 4: ELA and poverty- Not SPED Enrolled students

	Mean Pass Percent
<= 30% FRM Eligible N=142	74
31-50% FRM Eligible N=138	61
> 50% FRM Eligible N=200	51

Main effect for Poverty: Wald Chi Sq. (2) = 108.2, p<.001

Grade 4: Math and poverty- Not SPED Enrolled students

	Mean Pass Percent
<= 30% FRM Eligible N=136	72
31-50% FRM Eligible N=141	59
> 50% FRM Eligible N=207	51

Main effect for Poverty: Wald Chi Sq. (2) = 74.2, p<.001

Grade 5 Not Special Education Students

Grade 5: ELA and poverty- Not SPED Enrolled students

	Mean Pass Percent
<= 30% FRM Eligible N=135	76
31-50% FRM Eligible N=120	67
> 50% FRM Eligible N=204	55

Main effect for Poverty: Wald Chi Sq. (2) = 71.2, p<.001

Grade 5: Math and poverty- Not SPED Enrolled students

	Mean Pass Percent
<= 30% FRM Eligible N=140	67
31-50% FRM Eligible N=112	56
> 50% FRM Eligible n=178	44

Main effect for Poverty: Wald Chi Sq. (2) = 52.9, p<.001

Grade 5: Science and poverty- Not SPED Enrolled students

	Mean Pass Percent
<= 30% FRM Eligible n=134	78
31-50% FRM Eligible n=130	71
> 50% FRM Eligible n=228	59

Main effect for Poverty: Wald Chi Sq. (2) = 74.3, p<.001

7. Special Education Students (SPED) and SBA Outcomes.

	ELA	Math	Science/Biology
Grade 3	Poverty main effect	Poverty main effect	---
Grade 4	Poverty main effect	Poverty main effect	---
Grade 5	Poverty main effect	Poverty main effect	Poverty main effect
Grade 6	Insufficient schools for analysis	Insufficient schools for analysis	---
Grade 7	Insufficient schools for analysis	Insufficient schools for analysis	---
Grade 8	Insufficient schools for analysis	Insufficient schools for analysis	Insufficient schools for analysis
Grade 10/11	Insufficient schools for analysis	Insufficient schools for analysis	Insufficient schools for analysis

Because of the smaller population of students in special education, we were able to examine the effect of poverty and ACEs on SBA results for grades 3-5. While we documented a meaningful impact of school poverty on SPED student performance, we did not find that the level of community ACEs was an influence. While this could indicate that specific populations of students may not be as influenced by community adversity, we caution (1) that our analyses could only look at the early primary grades and (2) cell sizes in these specific analyses were at the lower end of what we considered acceptable for analysis which in turn could impact the sensitivity of our statistical tests.

Grade 3: ELA and poverty- SPED students

	Mean Pass Percent
<= 30% FRM Eligible N=139	37
31-50% FRM Eligible N=126	25
> 50% FRM Eligible N=201	22

Main effect for Poverty: Wald Chi Sq. (2) = 41.8, p<.001

Grade 3: Math and poverty- SPED students

	Mean Pass Percent
<= 30% FRM Eligible N=136	38
31-50% FRM Eligible N=129	30
> 50% FRM Eligible N=216	25

Main effect for Poverty: Wald Chi Sq. (2) = 28.6, p<.001

Grade 4 SPED

Grade 4: ELA and poverty- SPED students

	Mean Pass Percent
<= 30% FRM Eligible N=132	34
31-50% FRM Eligible N=130	24
> 50% FRM Eligible N=190	21

Main effect for Poverty: Wald Chi Sq. (2) = 41.8, p<.001

Grade 4: Math and poverty- SPED students

	Mean Pass Percent
<= 30% FRM Eligible N=125	37
31-50% FRM Eligible N=133	25
> 50% FRM Eligible N=196	23

Main effect for Poverty: Wald Chi Sq. (2) = 35.6, p<.001

Grade 5 SPED

Grade 5: ELA and poverty- SPED students

	Mean Pass Percent
<= 30% FRM Eligible N=121	33
31-50% FRM Eligible N=115	23
> 50% FRM Eligible N=203	21

Main effect for Poverty: Wald Chi Sq. (2) = 24.6, p<.001

Grade 5: Math and poverty- SPED students

	Mean Pass Percent
<= 30% FRM Eligible N=126	28
31-50% FRM Eligible N=106	19
> 50% FRM Eligible N=178	19

Main effect for Poverty: Wald Chi Sq. (2) = 17.6, p<.001

Grade 5: Science and poverty- SPED students

	Mean Pass Percent
<= 30% FRM Eligible N=111	45
31-50% FRM Eligible N=140	38
> 50% FRM Eligible N=219	33

Main effect for Poverty: Wald Chi Sq. (2) = 17.0, p<.001

C. Education Achievement Index.

Washington State's Education Data System (EDS) Achievement Index was developed to provide a single metric for assessing progress and includes growth gains over time as well as weighted data to more fully reflect the progress of subgroups of students (e.g., ethnicity, race and income). The Achievement Index is reported annually, and the composite achievement index is a rolling three-year weighted average including proficiency on the SBA assessments, measures of growth, and college and career readiness measures if the school is a high school

We considered the achievement index for each of the three years in which SBA has been fully implemented, 2014-15, 2015-16, and 2016-17. We confirmed the same basic findings across the three years and here report the 2016-17 school year results. We used the same basic GEE analysis approach.

For the achievement index for all students, we found significant poverty-by-ACEs interactions for 2014-15 and 2015-16 consistent with the interaction reported above for specific grade levels. The impact of ACEs on school achievement was particularly evident in schools with lower levels of poverty. For the 2016-17 school year, we found that poverty and ACEs were independent main effects. To assist with interpretation for the next two tables, in 2016-17, the mean achievement index for all Washington schools was 5.6 on a scale of 0-10 where higher scores reflect increasing academic achievement.

2016-17 Achievement index by school poverty

	Mean *2016-17* Achievement Index Rating
<= 30% FRM Eligible N=549	6.3
31-50% FRM Eligible N=546	5.7
> 50% FRM Eligible N=807	5.0

Main effect for Poverty: Wald Chi Sq. (2) = 150.4, p<.001

2016-17 Achievement index by community ACEs

	Mean Achievement Index Rating
Less than 25% high ACEs N=399	6.0
25-35% high ACEs N=948	5.6
Greater than 35% high ACEs N=555	5.4

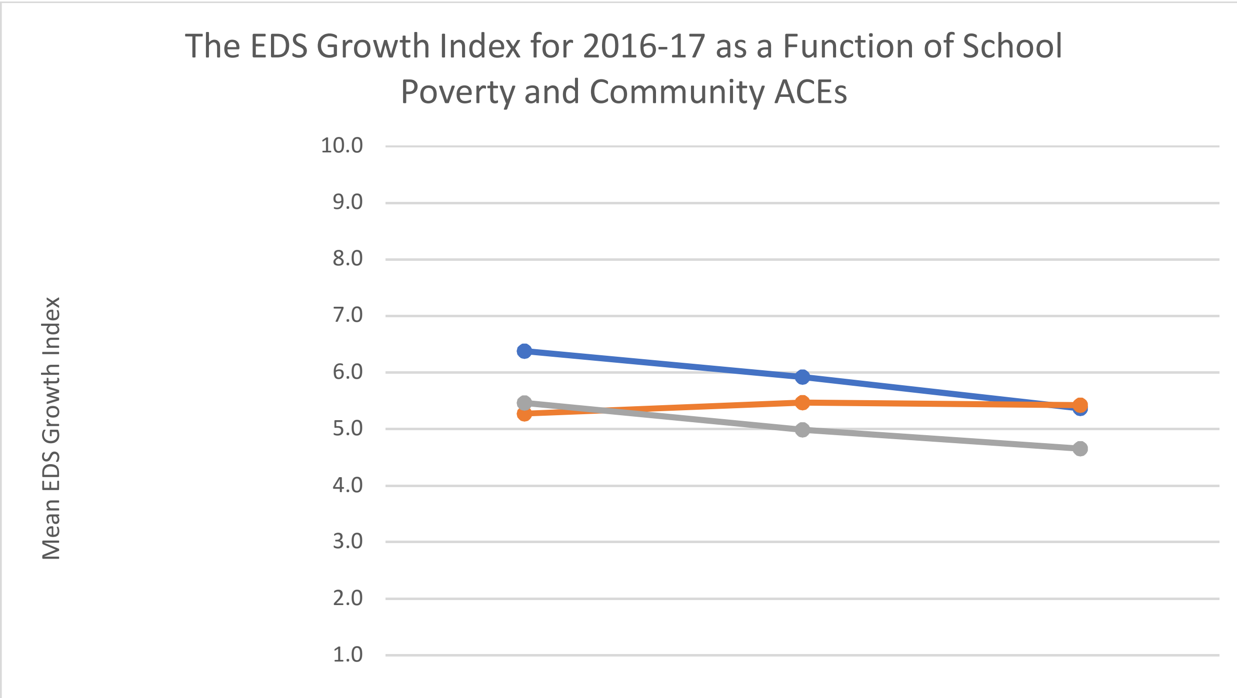
Main effect for ACEs: Wald Chi Sq. (2) = 15.2, p<.001

EDS Growth Index.

Standardized tests like SBA define competency benchmarks but educators are equally interested in the demonstration of growth in students relative to their past performance. Washington state uses a complex statistical methodology to assess student performance against peer students who had comparable performance on recent assessments. Growth scores are produced for individual students, schools, and districts during grades 4-8 where two consecutive years of testing results are available. For schools and districts, a 'median growth percentile' is calculated based on the individual percentile results for students in the school or district. The implication is that while a school work to improve pass percentages on SBA annual assessments, gains in median growth percentiles may provide a measure of schools' success in improving school SBA pass percentages. In Washington, these growth indicators are standardized in a Growth Index scaled from 0-10 where a 0 indicates lower rates of growth and a 10 the greatest average level of reported growth.

Like for pass percent and the achievement index, we found that differences across schools on the growth index were predicted by school poverty and levels of community ACES in each of the three academic years. As poverty or ACEs increased, the growth index was lower. For 2014-15, we found main effects for both poverty and ACEs. For 2015-16 and 2016-17, we found a significant interaction for poverty and ACEs. Because of equivalent results over the three years, we only report 2016-17 results here.

Figure 35: EDS Growth Index 2016-17 by School Poverty and Community ACEs



	Less than 25% high ACEs N=326	25-35% high ACEs N=784	Greater than 35% high ACEs N=447
<= 30% FRM Eligible N=446	6.4	5.9	5.4
31-50% FRM Eligible N=419	5.3	5.5	5.4
> 50% FRM Eligible N=692	5.5	5.0	4.7

Poverty by ACEs Interaction: Wald Chi Sq. (4) = 11.0 p<.03

D. Graduation Rates.

The Washington State EDS reporting system produces a five-year cohort graduation rate for schools which again is calculated as a Graduation Index where 0 indicates that 55% or fewer students graduated and a 10 indicates greater than 95% graduation.

We examined the Graduation Index for the three most recent years of available data, 2013-14, 2014-15, and 2015-16. For each year, we demonstrated that school poverty and community ACEs are both main effects predicting graduation. In both cases, increasing poverty or ACEs are associated with lower Graduation Index scores for schools.

2015-16 EDS Graduation Differences and School Poverty

	Mean Graduation Index Score
<= 30% FRM Eligible N=133	7.7
31-50% FRM Eligible N=164	7.0
> 50% FRM Eligible N=158	5.3

Main effect for Poverty: Wald Chi Sq. (2) = 25.0, $p<.001$

2015-16 EDS Graduation Differences and Community ACEs

	Mean Graduation Index Score
Less than 25% high ACEs N=98	7.4
25-35% high ACEs N=222	6.4
Greater than 35% high ACEs N=135	6.2

Main effect for ACEs: Wald Chi Sq. (2) = 9.5, $p<.009$

E. Attendance

Unexcused absences are reported by OSPI for grades 1-8. We followed the same analytic practices examining data for the most recent three years. We found that school poverty was predictive of unexcused absents but community ACEs were not. Because the relationship was consistent across the three years, we report only the 2016-17 academic year results.

2016-17 Unexcused Absence Rate Grades 1-8

	Unexcused Absence Rate
<= 30% FRM Eligible N=352	0.2%
31-50% FRM Eligible N=367	0.4%
> 50% FRM Eligible N=571	0.9%

Main effect for poverty: Wald Chi Sq. (2) = 9.5, $p<.009$

Discussion.

This report describes large systematic differences in the success of schools and therefore the wellbeing of Washington's children. In the 2016-17 school year data highlighted in this report, we describe the performance of 2,921 schools and 498,179 students who completed the SBA ELA and Math tests. These findings document significant differences in the overall health of our communities given the significance of educational attainment as a predictor of lifelong health (Freudenberg & Ruglis, 2007). Given the complex interplay of poverty and ACEs across Washington communities, our findings also indicate that while common intervention targets may be shared across communities, the strategies to mitigate the effects of poverty and adversity may need to be targeted to the unique circumstances in each community.

Poverty and the inter-generational impact of adversity in communities proved to be significant predictors of community differences. Updated with three years of testing under the new SBA assessment framework, we confirmed the value of school poverty and community adversity levels as contributing conditions to the success of K-12 students across Washington State. The risk always with large amounts of data is that we interpret relatively minor differences as significant. This risk of over-interpretation of modest results does not appear to apply to these findings. Examining test results for all students, we found mean differences as large as 30 percent in passing results across levels of poverty and more than 10 percentage points across levels of community ACEs. Because we are describing the entire population of school children, these differences across schools describe the academic struggles of tens of thousands of students each year. By this standard, addressing poverty and ACES in education policy and supports to schools appear to offer powerful planning tools.

Without years of investment in the cumulative data systems supported by OSPI, OFM, DOH, and DSHS, analyses of the entire student population of the state would not be possible. However, it's important to recognize both the power and the limitations of these data resources. While offering significant information, these data resources were designed to answer specific questions. When re-purposed for analyses such as this study, we can describe much of interest but also are frequently left with our next questions often not answerable with the data available. A powerful example of these constraints is understanding the contribution of Hispanic ethnicity as a marker of academic differences, and how ethnicity may mediate the effects of poverty and adversity. A second example is the finding that type of community contributes to both academic and adversity differences. Our data sets don't include information that could help explain these differences and for now serve more as indicators of the need for other information to assist in policy decisions.

One element of the data resources available in Washington deserves additional attention. Apart from data collection for community ACEs, all of our other data sources are updated on an annual or biennial basis. Our estimates of community level ACEs are based on three years of BRFSS data collection using the ACE questions from 2009-2011. The collection of ACEs data is an optional BRFSS module and adding it to yearly BRFSS interviews is expensive. We concluded that using six-to-eight-year old ACE results was justified because significant swings in whole community adversity exposure while not impossible is unlikely. By contrast, we have not used census information because economic indicators from 2010 are more open to change over time. Given the explanatory value of the BRFSS community ACEs results, the question for state policy makers is if to update ACEs information. Our recommendation is that inclusion of the ACEs module in upcoming BRFFS interviews is indicted in the next few years or this explanatory tool will no longer be useful.

Poverty and community ACEs as core organizing concepts.

We propose poverty and ACEs as the two overarching community conditions to be addressed if we are to increase academic success and youth wellbeing. The supporting literature for the significance of poverty is extensive, and the evidence for using ACEs or similar concepts as descriptors of communities is emerging. Multiple community risk and protective indicators are correlated with academic success and youth wellbeing, but each specific indicator was significantly associated with poverty and/or levels of community ACEs. When we included specific risk and protective factors in examining academic progress, the specific indicators did not add to the predictive power of poverty and community ACEs.

We want to emphasize the value of the specific risk and protective reporting strategies examined in this report. These community descriptors have great utility in targeting interventions and surveillance of specific health and social issues important to policy makers. However, specific risk and protective indicators (e.g., teen birth rates, degree of school affiliation, level of social and recreational resources, domestic violence incidence, child injuries) are outcomes of underlying concerns. Because poverty and ACEs are robust predictors of the range of specific risk and protective indicators as well as academic success, poverty and adversity are two candidate processes describing differential success for a community's schools and children.

Overall, we found that school poverty has greater explanatory power than does the degree of community ACEs. However, in multiple instances, the level of community ACEs was the sole significant predictor confirming the independent value of ACEs in understanding differences in academic success and youth wellbeing. Poverty in a community is likely to affect more residents directly than the more restricted exposure of residents to ACEs. School poverty may reflect poverty's more universal effects including access to resources and the financial and material means to manage risks. Also, school poverty measures are descriptors of the specific school population while community ACEs are a widespread and a more indirect measure of adults' influence on the social context in which schools operate.

The impact of poverty and ACEs in student sub-populations.

OSPI's recently moved to reporting assessment results across sub-populations of interest. This breakout of specific populations provides an opportunity to disaggregate some of the confounding effects we have identified in this and previous reports by testing how poverty and ACEs help explain academic success in different populations. For all students, at all grade levels except later high school grades, we found poverty, ACEs, or an interaction of these two factors were predictive of academic success.

We chose to report findings for the 2016-2017 academic year and not include repetitive findings from the previous two academic years. However, we want to emphasize that the 2016-2017 results confirming the predictive power of poverty and community ACEs were replicated in the each of the prior years. We conclude these stable relationships across the three years examined confirm the stability of the findings in this report.

The poverty-by-ACEs interaction effects in some instances need to be interpreted with caution because of significant group composition effects particularly for Hispanic enrollment, ELL enrollment, and type of community. These demographic school differences also are significant correlates of poverty and ACEs. The difficulty in interpreting some interaction effects reflects the constraints of re-purposing data for analyses like ours. While we used statistical control strategies to minimize these confounding effects, we do not believe that these statistical control methods could fully control for how these potential confounding factors are distributed across Washington schools. These constraints need to be kept in mind particularly if specific findings are used in isolation from this overall report.

The tests for White students found results equivalent to the results for all students. However, because several of the group composition confounds were excluded (e.g., differences across schools based on ELL enrollment, Hispanic enrollment) from these analyses, when there were interaction effects the impact of increasing ACEs was more uniformly distributed across levels of school poverty. Similarly, findings for 'non-low income' students, where we are controlling for the effects of individual poverty, demonstrated that standardized test results were lower with increasing school poverty and ACEs in 12 of 14 grade level analyses. This finding provides some support the conclusion that the school and community effects of poverty and ACEs are in addition to individual students' level of poverty. Because we don't have more information about the income levels of students who considered to be 'not low income', we advise caution in over-generalizing these results.

When we considered the Hispanic student group, we again minimized some of the confounding effects specifically for ELL enrollment. However, the effect of ELL enrollment differences in lower poverty schools resulted in the unusual result that increasing ACEs were associated with improved academic success. We recommend these unusual findings not be treated as valid results. Rather, these findings are excellent examples of the constraints of working with re-purposed administrative data. However, we do conclude that overall the Hispanic student group analyses provide important data consistent with the Hispanic Paradox and worthy of further investigation. When we examined Hispanic student academic progress in isolation, we found no significant predictive utility for ACEs on academic outcomes but significant poverty effects. This does not imply that Hispanic students do not experience ACEs but that we did not demonstrate the effect of community level ACEs on Hispanic students' academic success. This finding is consistent with proposal that Hispanic ethnicity may confer some protective influences on the effects of ACEs in the community.

Recommendations.

In the original *No School Alone* report and *Every Child School Ready*, we discussed several policy and practice issues that both reinforced current practices and suggested areas of new work or greater coordination that could be tailored to the impact of poverty and shared adversity. Rather than rework these discussions at length, we encourage readers to review the previous reports and here summarize some core themes.

1. <u>Strategies that don't account for community differences may not produce intended results. Investing in state and local partnerships is indicated</u>. What is common to both poverty and community ACEs is that these are indicators of comparative risk and the impact of both factors are influenced by resident characteristics and community differences. While poverty introduces shared burden across residents, access to services, access to recreational and cultural resources, and level of social connection are key indicators of assets in low income communities that

mitigate the effects of poverty and community adversity. As a result, local voice in how resources are used and how local efforts are coordinated is challenging but essential work.

We have retained the *No School Alone* title in this report because the influence of community context is powerful enough that it is unrealistic to expect school and district practices alone can address the overall educational success and social wellbeing of children. While data is not available to document this conclusion, our experience working across schools in multiple communities is that the presence and quality of community-school partnerships is highly variable. Such partnerships and collective impact efforts depend both on resources and community will. However, state policy supporting such partnerships also could catalyze such local community efforts. Although not updated in this report, in the original *No School Alone* report three years ago, we did provide key informant evidence across many Washington communities that loss of resources and more centralized management of some state programs were contributors to erosion of local capacity. Given the evidence for the impact of local context, we recommend revisiting how partnerships in local communities can be supported as part of state strategies for educational improvement.

2. <u>Educators need support for specific strategies to address poverty and adversity in their students</u>. <u>Awareness is the essential first step, but specific skills development and a focus on implementation quality are both needed to drive change</u>. While there are exceptions to this statement, overall educators entering the profession are trained in curriculum, classroom management, and pedagogy but not as effectively trained in understanding and managing the behavioral and developmental needs resulting in part from poverty and adversity in the lives of children. Teacher preparation programs may need to consider alignment of professional development efforts and the science of social determinants of educational success. There is also a need to consider how we prepare educators already in the field to address these concerns. This need is compounded by the common practice that the most vulnerable students often are supported intensively by para-educators who also come with varied backgrounds and need for continuing professional development.

There is a tendency in all our systems to define who needs service through the identification of diagnosed conditions. However, national trends for behavioral health concerns in schools demonstrate that the percent of children who struggle with adjustment problems is twice the estimated 10% of children experiencing severe emotional disorders (American Academy of Pediatrics, 2009). Combined with Washington's overlapping 14% of children in special education, children with functional limitations who do not meet diagnostic standards comprise a significant percentage of all students. In many schools, the percent of students needing more individualized support includes a significant minority of students. As a result, how we invest in the professional development of all education staff is a conversation that cuts across systems including higher education, schools, and the associated state agencies.

A number of educational improvement efforts already in Washington offer a promise of addressing a number of the effects of poverty and adversity on children's development. The state's Early Achievers program as a quality improvement and staff skills development through coaching in early learning is one instance. The increasing integration of social emotional learning, restorative practices, and trauma-informed school practices offers interesting if early efforts to address social skills, self-regulation capacity, and equity as practical improvement targets to support the academic performance of schools. We caution that no matter how good the specific program or technique, high quality staff development has to be balanced with high quality installation, implementation, and sustained efforts (Fixsen et al., 2005). Too often in schools, time-limited professional training is not supported with adequately resourced institutional efforts to support adoption and effective implementation. The result is ineffective use of professional development time and funds and inability to fully test if these strategies produce intended results. Even when we identify the right issues to address, if our change process is incomplete, we can't expect to deliver hoped-for improvements.

<u>3. What are the implications of the community differences for the next generation of state data resources?</u> Years of effort and investment have built data resources in the state that permit the type of analyses included in this report. All the data sources included in this report are dynamic tools that change as emerging issues dictate new questions and the need for new information. Given the demonstrated utility of poverty and ACEs as explanatory tools for academic risk, a question is how to enrich these resources while balancing data collection burdens and privacy concerns. We identified above that a new wave of BRFSS ACEs exposure interviews be considered to update current community estimates. Another example of a potential useful discussion is whether more explicit questions about ACE exposure incorporating common screening questions in the Healthy Youth Survey is acceptable, safe, and beneficial. The Healthy Youth Survey is an excellent example of the complexity of these discussions. In the Healthy Youth Survey's administration, local school leadership retains significant control over question inclusion and schools and districts can vary in terms of what is collected. Consequently, education of stakeholders and clear statements of risk-benefit assessment make these are necessarily complex discussions. Our hope is that the present findings are sufficiently powerful to provide a basis for renewed discussions of how best to assess poverty and ACEs as organizing principles for policy makers.

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