

Health Equity: Expanded In-School Learning Time Programs

Summary Evidence Table

Study	Intervention Characteristics	Population Characteristics	Results
<p>Author (Year): Angrist (2013)</p> <p>Study Design: Panel</p> <p>Suitability of Design: Greatest</p> <p>Quality of Execution: Good (1 limitation)</p>	<p>Location: Massachusetts, US</p> <p>Urbanicity: Mixed</p> <p>Study Duration: 2001/2002 through 2010/2011 school year</p> <p>Intervention Details: Charter schools added extra time to increase math and reading instruction</p> <p>School setting: charter schools Amount of time added: NR; cannot be calculated from information given Type of expansion: expanded day and year How time was used: math and reading instruction</p> <p>Comparison: Traditional public schools in urban and non-urban areas in MA</p>	<p>Study Population: Students from 17 middle and 6 high charter schools in MA</p> <p>Demographics: Only reported for students in all charter schools, not for the final sample used for analysis</p>	<p>Outcome Measure: Achievement in math and English language arts, measured by MA Comprehensive Assessment System</p> <p>Results: No or minimum impact on achievement gains in math and ELA; instruction time is not strongly correlated with school-specific impacts</p>

Study	Intervention Characteristics	Population Characteristics	Results
<p>Author (Year): Bellei (2009)</p> <p>Study Design: Before-after with concurrent comparison group</p> <p>Suitability of Design: Greatest</p> <p>Quality of Execution: Good (1 limitation)</p>	<p>Location: Chile</p> <p>Urbanicity: Mixed</p> <p>Study Duration: 2001–2003</p> <p>Intervention Details: Chilean government choose schools to change from 2 half-day shifts to one full day</p> <p>Amount of time added: from 955 hours per year to 1216 hours per year; 261 hours added on average</p> <p>Type of expansion: expanded day</p> <p>How time was used: on average, extra instructional time went to math and language</p> <p>Comparison: Schools maintaining the 2 half-day shifts</p>	<p>Study Population: Students in 112 schools that were chosen to expand school time</p> <p>Sample Size: Intervention: 29,623 students from 112 schools Comparison: 180,612 students from 647 schools</p> <p>Demographics: Grade levels: grade 10 Sex: 50.7% female Mean years of parental education: Father: 9.3 years Mother: 9.4 years Income level: 24.6% low income; 57.1% mid/low income</p>	<p>Outcome Measure: Achievement in math and language, measured by national test used in Chile</p> <p>Results: Math: 0.07 standard deviation, $p < 0.001$ Language: 0.05 standard deviation, $p < 0.001$</p>

Study	Intervention Characteristics	Population Characteristics	Results
<p>Author (Year): Bishop 1988</p> <p>Study Design: Before-after</p> <p>Suitability of Design: Least</p> <p>Quality of Execution: Fair (2 limitations)</p>	<p>Location: Southwestern VA, US</p> <p>Urbanicity: Rural</p> <p>Study Duration: Pre: 1984–1985 Post: 1985–1986</p> <p>Intervention Details: A rural high school adding a 7th period to the school day</p> <p>Amount of time added: one period added; unclear the length of the period Type of expansion: expanded day How time was used: students can choose extra subjects or extracurricular activities</p> <p>Comparison: Before-after comparison of the school</p>	<p>Study Population: Students enrolled in the rural school from grades 8–12</p> <p>Sample Size: 1207 students</p> <p>Demographics: NR</p>	<p>Outcome Measure: Changes in GPA as recorded by school</p> <p>Disciplinary incidence as recorded by school</p> <p>Attendance</p> <p>Dropout</p> <p>Results: GPA increased by 0.8%</p> <p>Disciplinary incidence Minor offenses: # of offenses Males: -17% Females: -16% # of days in detention Male: -18% Female: -11%</p> <p>Major offenses: # of suspendable offenses Males: -22% Females: -23% # of days in detention Male: -32% Female: -27%</p> <p>No changes to attendance or dropout</p>

Study	Intervention Characteristics	Population Characteristics	Results
<p>Author (Year): Checkoway 2012</p> <p>Study Design: Before-after with concurrent comparison</p> <p>Suitability of Design: Greatest</p> <p>Quality of Execution: Fair (2 limitations)</p>	<p>Location: Boston, MA, US</p> <p>Urbanicity: Mixed</p> <p>Study Duration: 2005–2006 to 2010–2011 school years</p> <p>Intervention Details: Expanded Learning Time (ELT) initiative in MA; cohorts of schools in MA were chosen by the state based on certain criteria to expand school time</p> <p>Amount of time added: by 2008/2009 school year, ELT schools expanded school schedule by at least 300 hours over the local schools’ average</p> <p>Type of expansion: expanded day</p> <p>How time was used: 14 of 18 schools provided dedicated time to target specific academic skills; on average 3 hours per week allocated to dedicated academic support</p> <p>Comparison: Schools matched on key observable characteristics as well as pre-program data when available</p>	<p>Study Population: Students from 18 schools included in the final analysis</p> <p>Sample Size: NR</p> <p>Demographics: Race/Ethnicity: 12 of 18 ELT schools served 50% or higher minority population</p> <p>SES: All schools served at least 50% low-income students</p> <p>English proficiency: over 1/3 of ELT schools served students where 20% or more of the population with Limited English Proficiency</p>	<p>Outcome Measure: Achievement in math, English, and science, measured by MA Comprehensive Assessment System scores</p> <p>Attendance</p> <p>Results: Expanding in-school time had no statistically significant impact on any subjects</p> <p>Attendance by the end of 4 years of ELT: No effects of ELT on attendance rates</p>

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<p>Author (Year): Dobbie 2013</p> <p>Study Design: Panel study</p> <p>Suitability of Design: Greatest</p> <p>Quality of Execution: Good (1 limitation)</p>	<p>Location: New York City, NY, US</p> <p>Urbanicity: Urban</p> <p>Study Duration: 2003/2004–2010/2011 school years</p> <p>Intervention Details: Charter schools that increased instructional time by 25% or more.</p> <p>Amount of time added: Schools differed from each other in the amount of time added; for analyses, cutoff point at 25% or more instructional time compared to traditional public schools Type of expansion: Expanded day and year How time was used: NR</p> <p>Comparison: Traditional public schools in NYC</p>	<p>Study Population: Students from eligible elementary and middle schools</p> <p>Sample Size: Elementary school: 11,091 Middle school: 9,237</p> <p>Demographics: Sex: 51% female Race/ethnicity: White: 2.5% African American: 60.8% Asian: 2.0% Hispanic: 34.5%</p> <p>Qualifying for free or reduced price lunch: 86%</p>	<p>Outcome Measure: Achievement in math and English, measured by NY state tests</p> <p>Results: Math: 0.05 standardized mean difference, $p < 0.01$ English: 0.02 standardized mean difference, NS</p>

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<p>Author (Year): Eren 2007</p> <p>Study Design: Panel study</p> <p>Suitability of Design: Greatest</p> <p>Quality of Execution: Fair (2 limitations)</p>	<p>Location: US, nation-wide</p> <p>Urbanicity: Mixed</p> <p>Study Duration: Baseline in 1988; follow up surveys in 1990, 1992, 1994, and 2000</p> <p>Intervention Details: Use of data from NECS:88 (National Education Longitudinal Study of 1988), a survey conducted by the National Center for Education Statistics</p> <p>Amount of time added: comparison between schools with different school year and school day length Length of school year: ≤180 days; >180 days; Number of class periods per school day: ≤6 classes; 7 classes; ≥8 classes; Average class length: ≤45 minutes; 46-50 min; ≥51 minutes; Type of expansion: expanded day; expanded year How time was used: NR</p> <p>Comparison: Comparison between the categories listed above</p>	<p>Study Population: 10th graders in selected public schools participating in the NECS:88 survey</p> <p>Sample Size: 10,288 students</p> <p>Demographics: Grade levels: 10th grade Sex: 51.0% female Race/ethnicity: White: 78% African American: 10.6% Hispanic: 6.8%</p> <p>Fathers' education, mean: 13.4 years</p>	<p>Outcome Measure: Composite score across 4 subjects examined: reading, social science, math, and science</p> <p>Results: Longer school year has a negative impact on student test scores; Including more class periods has a positive impact; Having longer class periods has a negative impact; 7 periods with each period lasting 45 minutes or less seemed to produce better test scores</p>

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<p>Author (Year): Frazier 1998</p> <p>Study Design: Before-after with concurrent comparison</p> <p>Suitability of Design: Greatest</p> <p>Quality of Execution: Fair (2 limitations)</p>	<p>Location: Midsized southeastern city, US</p> <p>Urbanicity: Urban</p> <p>Study Duration: Fall 1991 to Fall 1993</p> <p>Intervention Details: Additional school days were added to the school year for a kindergarten</p> <p>Amount of time added: 1st cohort added 15 days at the end of school year; 2nd cohort added 15 days at the beginning and 15 days at the end of school year Type of expansion: expanded year How time was used: NR</p> <p>Comparison: 12 kindergarten classrooms drawn from 4 magnet schools that emphasized the teaching of science and technology, communications, open education, and acceleration and enrichment</p>	<p>Study Population: Kindergarten students in magnet schools</p> <p>Sample Size: Cohort 1: 34 Cohort 2: 57</p> <p>Demographics: Parents' occupational status: Intervention: 46.2% Control: 45.8%</p> <p>Fathers' education in years: 15.5 Mothers' education in years: 15.2</p>	<p>Outcome Measure: Achievement in vocabulary, general knowledge, reading, and math</p> <p>Results: Cohort with 15 days added Vocabulary: -2.0%, NS General knowledge: 28.6%, p<0.05 Reading: 8.0%, p<0.05 Math: 5.8%, NS</p> <p>Cohort with 30 days added Vocabulary: 5.3%, NS General knowledge: 25.5%, p<0.05 Reading: 31.5%, p<0.05 Math: 31.4%, p<0.05</p> <p>Results supported the overall hypothesis that additional instruction time in the form of extended-year schooling can lead to enhanced achievement</p>

Study	Intervention Characteristics	Population Characteristics	Results
<p>Author (Year): Gleason 2010</p> <p>Study Design: RCT (randomized lottery)</p> <p>Suitability of Design: Greatest</p> <p>Quality of Execution: Fair (2 limitations)</p>	<p>Location: Multiple states, US</p> <p>Urbanicity: Mixed</p> <p>Study Duration: NR</p> <p>Intervention Details: Comparing students who won the lottery to enter the study charter schools to students who didn't win the lottery and attended public or other schools during the study period</p> <p>Amount of time added: mean number of hours of operation of the schools attended by lottery winners was 1,304, schools attended by students who didn't win the lottery had 1,209 hours; a difference of 95 hours per year Type of expansion: expanded day and year How time was used: NR</p> <p>Comparison: Students who didn't win the lottery to attend the study charter schools and attended other schools</p>	<p>Study Population: Students who applied to study charter schools, participated in the schools' admissions lotteries, and for whom parental consent was obtained</p> <p>Sample Size: Intervention (students won the lottery): 1400 Control (students didn't win the lottery): 930</p> <p>Demographics: Age: mean of 11.5 years Sex: 54% female Race/ethnicity: White: 57% African American: 10% Others: 27% Hispanic: 46%</p> <p>Qualifying for free or reduced price lunch: 34%</p>	<p>Outcome Measure: Achievement in math and reading as measured by state tests</p> <p>Attendance</p> <p>Disciplinary incidents</p> <p>Results: Weak but positive association between time and achievement in math and reading, but not statistically significant.</p> <p>No time-specific impact on attendance or disciplinary incidents</p>

Study	Intervention Characteristics	Population Characteristics	Results
<p>Author (Year): Hoxby (2009)</p> <p>Study Design: RCT (randomized lottery)</p> <p>Suitability of Design: Greatest</p> <p>Quality of Execution: Good (1 limitation)</p>	<p>Location: New York City, NY, US</p> <p>Urbanicity: Urban</p> <p>Study Duration 2000/01 to 2007/08 school year</p> <p>Intervention Details: Comparing students who won the lottery to enter the study charter schools to students who didn't win the lottery and attended public or other schools during the study period</p> <p>Amount of time added: 12 extra days, with 8 hours per day; 1.5 extra hours per day. Total 366 hours added Type of expansion: expanded day and year How time was used: about 22 extra minutes on English, 15-30 minutes on math per day</p> <p>Comparison: Students who didn't win the lottery to attend the study charter schools and attended other schools</p>	<p>Study Population: Charter schools with more students applying for entrance than the number of openings, and used lottery to determine entrance eligibility; Students who won the lottery for charter schools and enrolled</p> <p>Sample Size: NR</p> <p>Demographics: Sex: 50% female Race/ethnicity: White: 4% African American: 64% Asian: 3% Others: <1% Hispanic: 28%</p> <p>Qualifying for free or reduced price lunch: 91%</p>	<p>Outcome Measure: Achievement in math and reading</p> <p>Results: An increase of 10 school days led to a 0.15 SD increase in achievement, $p < 0.01$; effect not observed for hours in a school day, or having Saturday school.</p> <p>An increase of 10 minutes in English instruction led to a 0.02 SD increase in achievement; no significant effect for math</p>

Study	Intervention Characteristics	Population Characteristics	Results
<p>Author (Year): Kraft (2015)</p> <p>Study Design: Before-after with concurrent comparison group</p> <p>Suitability of Design: Greatest</p> <p>Quality of Execution: Good (1 limitation)</p>	<p>Location: Boston, MA, US</p> <p>Urbanicity: Urban</p> <p>Study Duration: 2002-2009</p> <p>Intervention Details: Expanded day tutoring program offered in 7 selected Boston area charter schools</p> <p>Amount of time added: 2 extra hours for 4 days during school week Type of expansion: expanded day How time was used: mandatory individualized math and English tutoring</p> <p>Comparison: Students attending charter schools without the expanded time tutoring program</p>	<p>Study Population: 10th graders in selected charter schools in Boston area</p> <p>Sample Size: Intervention: 100 Control: 489</p> <p>Demographics: Age: 16 years Sex: 65% female Race/ethnicity: White: 2% African American: 67% Asian: 5% Hispanic: 26%</p> <p>Family with low income: 82% Non-native English speakers: 20%</p>	<p>Outcome Measure: Achievement in English and math as measured by MA state test</p> <p>Results: English: One semester of tutoring increased student achievement on MCAS test by 0.25 SMD, $p < 0.05$ Math: One semester of tutoring increased student achievement on MCAS test by 0.002 SMD, NS</p>

Study	Intervention Characteristics	Population Characteristics	Results
<p>Author (Year): Lavy 2012 (Additional information from Lavy 2016)</p> <p>Study Design: Prospective cohort</p> <p>Suitability of Design: Greatest</p> <p>Quality of Execution: Good (1 limitation)</p>	<p>Location: Israel</p> <p>Urbanicity: Mixed</p> <p>Study Duration: 2002-2005</p> <p>Intervention Details: School finance policy changed: schools with a large enrollment of students with a high deprivation index and schools with large classes gained resources, while others schools lost resources; A principal consequence of budget change was to allow schools with increased funding to increase classroom time Amount of time added: 1 instructional hour added per week per subject: math, science, and English Type of expansion: expanded day How time was used: instructional time used for math, science, and English</p> <p>Comparison Schools that did not experience a change in budget or reduced budget</p>	<p>Study Population: Students in elementary schools</p> <p>Sample Size: 920 schools with 53,981 students</p> <p>Demographics: Grade levels: 5 Sex: 50% female</p> <p>Father’s years of schooling: 12.7 Mother’s years of schooling: 12.9</p>	<p>Outcome Measure: Achievement in math, English, and science as measured by national test</p> <p>Results: With weekly increase of 1 hour in instructional hours, there was: Increase of 0.041 SMD in math; Increase of 0.05 SMD in English; Increase of 0.04 SMD in science; Increase of 0.053 SMD in combined score</p>

Abbreviations

NR: not reported
 NS: Not statistically significant
 FRLP: Free/reduced price lunch program
 LEP: Limited English proficiency

SMD: Standardized mean difference
 TANF: Temporary assistance for needy families program
 ELT: Expanded learning time
 SD: Standard deviation