

REPORT

EXECUTIVE SUMMARY

**Ewing Marion Kauffman School
Evaluation Impact Report
Year 5**

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EXECUTIVE SUMMARY

As part of its ongoing efforts to raise the academic achievement of children from low-income families in Kansas City, Missouri, the Ewing Marion Kauffman Foundation founded the Ewing Marion Kauffman School in fall 2011. The Kauffman School’s mission is “to prepare students to excel academically, graduate from college, and apply their unique talents in the world to create economically independent and personally fulfilling lives” (Ewing Marion Kauffman School 2017).

As a public charter school, the Kauffman School is tuition-free and serves students living in Kansas City. In the 2015–16 school year, the Kauffman School enrolled 714 students in grades 5 through 9; 86 percent of the students were low-income, and 90 percent were black or Hispanic.

The Kauffman School has ambitious goals for its students, including accelerated learning, high attendance levels, and exemplary behavior. In this report, we summarize information about the impact of the Kauffman School on student achievement, attendance, and suspension rates.

Data and methods. Data used for the report came from the Missouri Department of Elementary and Secondary Education and included student achievement on the Missouri Assessment Program (MAP) and end-of-course (EOC) exams, information on attendance and suspensions, and demographic characteristics of the students. To estimate the impact of the Kauffman School on its students, we identified a group of similar students attending other Kansas City public schools and then compared the two groups on key impact measures. We provide more details on our analytic approach in the full report.

Main findings. Our findings indicate that, in each of its first five years of operation (the 2011–12 through 2015–16 school years), the Kauffman School had positive, statistically significant, and educationally meaningful impacts on student achievement growth in mathematics, English language arts (ELA), and science, beyond the growth achieved by students in other Kansas City public schools.

Table ES.1 presents results based on the number of years since a student enrolled in the Kauffman School. In every subject and year examined, the Kauffman School’s impact on test scores is positive and statistically significant, indicating that the school is outperforming other local schools serving similar students.

Table ES.1. Impact of Kauffman School on student test scores (reported in effect-size units)¹

	Cohorts included	Mathematics/ Algebra I	ELA	Science/Biology
Impact one year after enrollment (5th grade)	I-V	0.35	0.28	0.45
Impact two years after enrollment (6th grade)	I-IV	0.39	0.19	n.a.
Impact three years after enrollment (7th grade)	I-III	0.63	0.41	n.a.
Impact four years after enrollment (8th grade)	I-II	0.96 ^a	0.47	0.64
Impact five years after enrollment (9th grade)	I	0.94	n.a.	1.25

Notes: All results are statistically significant at the 1 percent level. The five-year impact estimates are based on the Algebra I and biology EOC exams. There are no two- or three-year estimates for science because the state does not have a science test for 6th or 7th graders. Similarly, there is no five-year impact for ELA because no EOC ELA exam is administered to 9th graders.

^a The four-year mathematics impact is based in part on imputed outcome data. See footnote 2 for details.

ELA = English language arts; n.a. = not applicable

The effect-size units reported in Table ES.1 are useful but not very intuitive. To translate the results into units that are more readily interpretable, we turn the effect sizes into years of learning growth through a commonly used conversion method for effect sizes (Bloom et al. 2008). In Figure ES.1, we display the impact estimates converted to years of learning growth for Kauffman students. When performing this conversion, we assume that comparison students in Kansas City public schools on average achieve one year of learning growth per school year. One of the goals stated in the Kauffman School’s charter is that its students on average will achieve at least 1.25 years of learning growth for each year that they are enrolled in the school. The Kauffman School has achieved this goal in each subject for all enrollment durations.

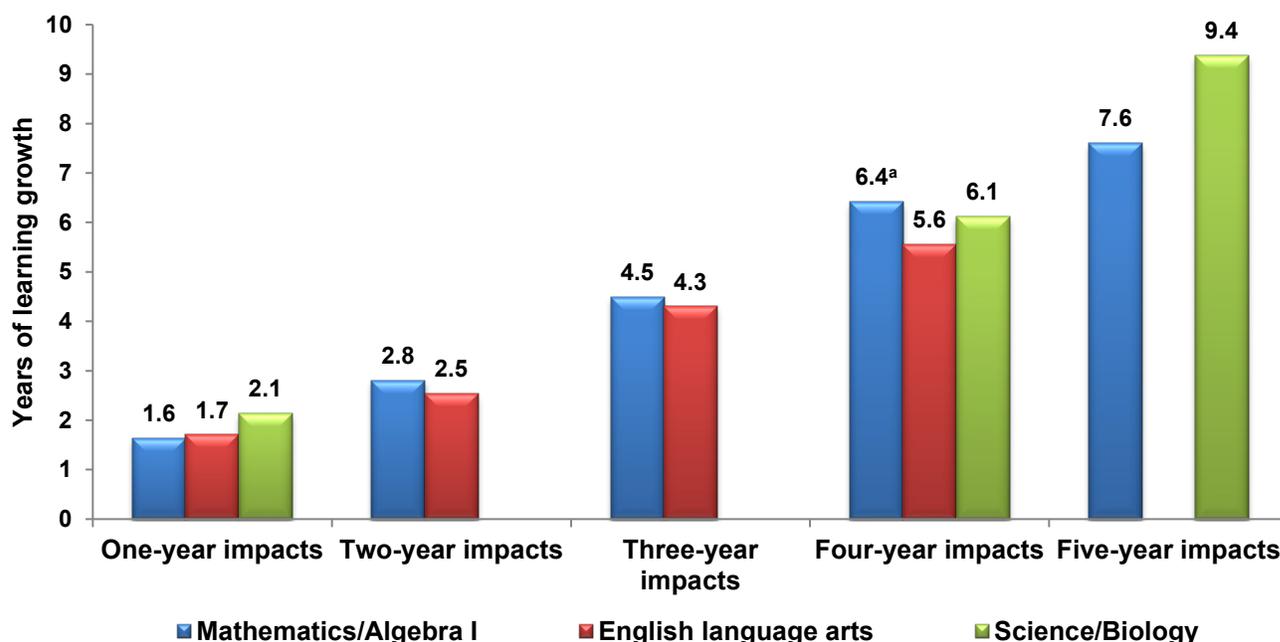
Impacts on mathematics achievement growth. The estimated impact of the Kauffman School on student achievement in mathematics is substantial.² The magnitude of the effect size

¹ The impact of the Kauffman School on student achievement growth is reported in “effect-size” units (fractions of standard deviations of student test scores) that are commonly used in education studies and that allow comparisons to other studies. We measure the average effect that attending the Kauffman School has on student test score growth beyond what students would have achieved if they had attended other Kansas City public schools. A positive effect size means that test score growth is higher for Kauffman students relative to comparison students and vice versa.

² The four-year mathematics impact should be interpreted with caution because not all of the students in the matched comparison group took the 8th-grade MAP; students who were taking Algebra I in 8th grade took a different test. To deal with this problem, we imputed missing 8th-grade mathematics MAP scores for 8th-grade students taking Algebra I. See Section III.A for details on our imputation process. The imputation inherently adds some uncertainty

translates into approximately 4.5 years of learning growth three years after enrollment.³ Before entering the Kauffman School (that is, in 4th grade), the average Kauffman student is at the 35th percentile in the state in mathematics. The results suggest that the average Kauffman student would move to the 60th percentile three years after enrollment in the Kauffman School. Moreover, the three-year mathematics effect is equal to approximately 78 percent of the test score achievement gap between black and white students in 7th grade in Kansas City. The four- and five-year mathematics impact estimates are large as well and are equivalent to approximately 6.4 and 7.6 years of learning growth, respectively.

Figure ES.1. Estimated years of learning growth for Kauffman students



Notes: The conversion presented in this figure assumes that students in the comparison group on average achieve one year of learning growth per year. The five-year impact estimates are based on the Algebra I and biology EOC exams. There are no two- or three-year estimates for science because the state does not have a science test for 6th or 7th graders. Similarly, there is no five-year impact for ELA, because no EOC ELA exam is administered to 9th graders.

^a The four-year mathematics impact is based in part on imputed outcome data. See footnote 2 for details.

Impacts on ELA achievement growth. The effect size in ELA is substantial as well; the magnitude translates into approximately 4.3 years of learning growth by the end of the third year after enrollment. The average Kauffman student moves from the 38th percentile in the state in

to the exact size of the four-year mathematics impact, but we believe that this approach provides a reasonable approximation.

³ In this report we focus primarily on the three-year impact estimates when discussing the magnitude of the effect of the Kauffman School on student achievement. Three years is the longest duration for which we have impact estimates based on actual (non-imputed) outcome data for both mathematics and ELA for multiple cohorts of Kauffman students. In addition, three-year impact estimates based on grade-level exams are more directly comparable to the results of other charter school effectiveness studies than impacts based on EOC exams. For science, we focus on four-year impacts because no three-year impact estimates is available.

ELA before entering the school to the 55th percentile after three years. This effect is approximately 66 percent of the ELA test score achievement gap between black and white students in 7th grade in Kansas City.

Impacts on science achievement growth. The impact of the Kauffman School in science is also large. Four years after enrolling in the Kauffman School, students achieved approximately 6.1 years of learning in science. The impact is equivalent to approximately 57 percent of the local science test score achievement gap between black and white students in 8th grade. Five years after enrollment, students achieved approximately 9.4 years of learning growth based on biology EOC exam scores. However, the science impact estimates should be interpreted with caution because there was no 4th-grade science exam that could be used in the analysis; instead, we used 4th-grade ELA and mathematics scores as baseline controls.

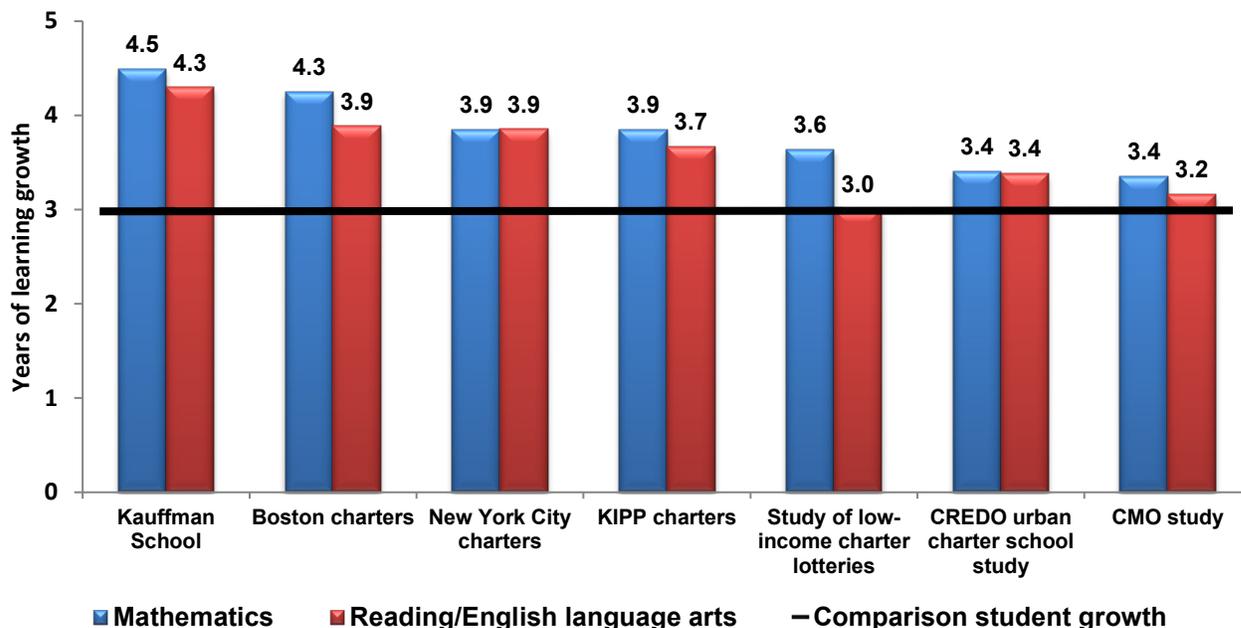
Comparison to other charter schools. The Kauffman School's achievement impacts in mathematics and ELA three years after enrollment are larger than the average effects observed for other highly successful charter school programs (Figure ES.2), including the average Boston charter school analyzed by Abdulkadiroglu et al. (2009), the average Knowledge Is Power Program (KIPP) middle school studied by Tuttle et al. (2013), and the average New York City charter school analyzed by Hoxby et al. (2009) (although some *individual* schools in those studies achieved higher impacts than the Kauffman School).

Moreover, the Kauffman School is strongly outperforming broader samples of charter schools nationwide. The effects of the Kauffman School are substantially greater than those of the average oversubscribed charter school serving a large proportion of low-income students analyzed by Gleason et al. (2010), the average urban charter school in the 41 regions analyzed by the Center for Research on Education Outcomes (CREDO 2015), and the average school in a nationwide group of charter school management organizations (CMOs) studied by Furgeson et al. (2012).

The impact of charter schools on science achievement is less widely reported because most states administer science tests in fewer grades. The Kauffman School, with an estimated four-year effect size of 0.64, is performing well compared to KIPP middle schools, which are estimated to have a cumulative average impact of 0.33 standard deviations in science for students three to four years after enrollment (Tuttle et al. 2013).

In addition, other studies of charter school effectiveness frequently do not report impact estimates on EOC exams. The most comparable five-year impact estimates based on EOC exams for KIPP schools are 0.39 in mathematics and 0.40 in science (Tuttle et al. 2015), which are less than half the size of the Kauffman School's estimated five-year impacts.

Figure ES.2. Charter school three-year impact estimates from various studies represented as years of learning growth⁴



Notes: The figure presents three-year effect-size estimates converted to years of learning growth. This conversion assumes that students in each study's comparison group on average achieve one year of learning growth per year, as indicated by the black horizontal line.

Alternate comparison groups in Kansas City. The main findings summarized here are a result of comparing Kauffman students with a matched comparison group of students from all public schools in Kansas City. We also compared Kauffman students with two subgroups of children—(1) similar students attending district-operated schools in Kansas City and (2) similar students attending other Kansas City public charter schools. The estimated effect sizes are generally higher when we compare the Kauffman School only with district-operated schools and lower when we compare the Kauffman School only with other charter schools. All the effect-size estimates for both comparison groups are positive and significant, indicating that the Kauffman School is outperforming the average public charter school and the average district school in Kansas City in all three tested subjects.

Changes in effectiveness of the Kauffman School over time. We analyzed whether the Kauffman School's impact on student achievement changed during the first five years of school operation. The Kauffman School produced significant positive and stable achievement impacts

⁴ Effect-size estimates are for the average Boston charter school as reported in Abdulkadiroglu et al. (2009), for the average KIPP charter school analyzed by Tuttle et al. (2013), the average New York City charter school in grades 4 through 8 as reported in Hoxby et al. (2009), the average charter school with a lottery admission process serving a large fraction of low-income students analyzed by Gleason et al. (2010), the average urban charter school in the 41 regions analyzed by the Center for Research on Education Outcomes (CREDO 2015), and the average school in the charter school management organizations (CMO) studied by Furgeson et al. (2012). See Section III.C for further details.

during its first three years and then substantially accelerated its achievement impacts in Year 4 in most grades and subjects (Tables ES.2–ES.4). In Year 5, the impacts generally remained near the high level achieved in Year 4. We observed only two statistically significant exceptions to this general trend: in 7th-grade ELA the estimated impact decreased by approximately half in Year 5, and in 5th-grade mathematics the impact nearly doubled. In Chapter VI, we discuss the ways in which key features of the Kauffman School evolved over the school’s first five years of operation and may have contributed to the positive achievement impacts.

Table ES.2. Comparison of mathematics test score impacts across years

	Year 1	Year 2	Year 3	Year 4	Year 5
5th-grade mathematics effect size	0.13	0.15	0.12	0.42**	0.80**
6th-grade mathematics effect size		0.33	0.20	0.43*	0.48
7th-grade mathematics effect size			0.57	0.80*	0.56
8th-grade mathematics effect size				0.96	0.97

*Significantly different from the prior year at the 5 percent level.

**Significantly different from the prior year at the 1 percent level.

Table ES.3. Comparison of ELA test score impacts across years

	Year 1	Year 2	Year 3	Year 4	Year 5
5th-grade ELA effect size	0.06	0.18	0.13	0.44**	0.44
6th-grade ELA effect size		0.18	0.20	0.17	0.21
7th-grade ELA effect size			0.41	0.66*	0.26**
8th-grade ELA effect size				0.53	0.39

*Significantly different from the prior year at the 5 percent level.

**Significantly different from the prior year at the 1 percent level.

ELA = English language arts.

Table ES.4. Comparison of science test score impacts across years

	Year 1	Year 2	Year 3	Year 4	Year 5
5th-grade science effect size	0.40	0.54	0.43	0.52	0.44
8th-grade science effect size				0.66	0.61

State test proficiency goal. One of the goals of the Kauffman School is for at least 75 percent of students enrolled for three consecutive years to score proficient on each state test administered to its students. This is an ambitious goal, as only 36 percent of incoming 5th-grade students from the first three cohorts (the only cohorts that have been enrolled for three years) had achieved at the proficient or advanced levels in mathematics and 38 percent in ELA (Table ES.5). After three consecutive years of enrollment, 63 percent achieved proficient or advanced in

mathematics and 65 percent in ELA.⁵ These calculations are based primarily on students enrolling consecutively in 5th, 6th, and 7th and grade, though students who repeated a grade during their first three years are also included.

Table ES.5. Percentage of Kauffman students scoring proficient or advanced on 7th-grade MAP exams after three years of continuous enrollment

	Proficient/advanced at time of entry	Proficient/advanced after three years of enrollment
Cohort I, II, and III students combined		
Mathematics MAP (%)	36	63
ELA MAP (%)	38	65
Both mathematics and ELA MAP (%)	24	52

Notes: The sample includes 295 Cohort I, Cohort II, and Cohort III students enrolled in the Kauffman School for three consecutive years. Proficiency rates are based on 6th-grade MAP scores for students who repeated a grade during their first three years at the Kauffman School. The scores at time of entry are based on 4th-grade MAP scores for most students, and 3rd- or 5th-grade MAP scores for students who skipped or repeated a grade when they joined the Kauffman School.

ELA = English language arts

The proficiency rates of Kauffman students continue to increase for students enrolling for four or five years. The first two cohorts of students achieved more than 75 percent proficiency on each state test by the end of their fourth year. By the end of their fifth year of continuous enrollment, more than 90 percent of 9th-grade students achieved proficiency on both the Algebra I and biology EOC exams (Table ES.6).

Table ES.6. Percentage of Kauffman students scoring proficient or advanced on 9th-grade EOC exams after five years of continuous enrollment

	Proficient/advanced at time of entry	Proficient/advanced after five years of enrollment
Algebra I EOC/mathematics MAP (%)	34	94
ELA MAP (%)	26	n.a.
Biology EOC/science MAP (%)	n.a.	92
All available MAP assessments (%)	18	92

Notes: The sample includes 50 Cohort I students who were enrolled at the Kauffman School for five consecutive years. The scores after five years of enrollment are based on 9th-grade EOC exams for 47 students and on 8th-grade MAP exams for 3 students who repeated a grade during their time at the Kauffman School.

ELA = English language arts; n.a. = not applicable

Attendance and suspensions. The Kauffman School had a positive and significant impact on student attendance during the 2015–16 school year, with attendance rates approximately 1 percentage point higher than those of comparison students (Table ES.7).

⁵ It is important to note that the proficiency rates may not be comparable across years, because the state assessments administered in Years 4 and 5 were not the same as those administered in previous years. See Section V.A for details.

Table ES.7. Comparison of impacts of the Kauffman School on attendance and suspensions across years

	2011–12 average	2012–13 average	2013–14 average	2014–15 average	2015–16 average
Attendance rate (%)	-0.83	0.87**	0.72	0.87	0.96
Probability of being suspended (%)	13.4	7.22	24.7**	8.85**	1.72*

Notes: The suspension results are marginal effects from logit models in which the outcome variable is an indicator for receiving a suspension during the year.

*Significantly different from the prior school year's outcomes at the 5 percent level.

**Significantly different from the prior school year's outcomes at the 1 percent level.

During 2015–16, there was a significant decrease in the number of Kauffman students who were suspended relative to previous years, such that the 2015–16 school year is the first year Kauffman students were suspended at a rate that was not significantly higher than comparison students. In Chapter VI, we document changes in the discipline policy and its implementation that may have contributed to the decline in suspensions at the Kauffman School.

Conclusions. The Kauffman School has ambitious goals for its students: accelerated learning and high levels of attendance. An analysis of data from the Kauffman School's first five years shows significant positive impacts on student's academic achievement growth. The Kauffman School exceeded its goal of 1.25 years of learning growth for each year that students are enrolled. Even though the Kauffman School did not meet its ambitious goal of 75 percent of students scoring proficient or advanced on each of the MAP exams after three years, students did reach that mark at the end of their fourth year. And by the end of their fifth year, more than 90 percent of Kauffman Students scored proficient or advanced on the state EOC exams. During 2015–16, students at the Kauffman School had average attendance rates that were approximately one percentage point higher than those of comparison students. The suspension rate at the Kauffman School decreased significantly in Year 5, such that Kauffman students now are suspended at rates that are not significantly different from comparison students.

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