



MEP Full-day 4K Evaluation: Baseline Data Update

This fall, the [Madison Education Partnership](#) (MEP), in collaboration with the Madison Metropolitan School District's Departments of Early Learning and Research & Innovation, began an evaluation of the first year of the District's full-day 4K program. The District chose to initially offer full-day 4K programming at schools that serve relatively high numbers of students of color and students from families that are economically constrained as part of an equity strategy to address persistent gaps in outcomes by targeting those groups who historically have come in, on average, lower-performing. We recently completed our first round of data collection, assessing dimensions of children's executive function and numeracy skill around the time they begin 4K. We found:

- In line with the design of the full-day 4K roll-out, full-day classrooms on average include more students of color and fewer children whose parents enrolled in college than do half-day classrooms.
- At the start of 4K, students in full-day sections score slightly lower on average than their half-day counterparts in early literacy, early numeracy, executive function, and social-emotional skills.
- These differences in baseline scores, however, are relatively small and do not undermine the evaluation design.

How are we evaluating the full-day 4K program in its first year?

This evaluation explores differences in student learning in literacy, numeracy, executive functioning, and social-emotional skills in full-day and half-day 4K. We measured achievement in these areas at the beginning of the school year for around 12 randomly chosen students from each of the 16 full-day sections and 29 half-day 4K sections. We will return at the end of the 2021-2022 school year to measure changes in achievement for these students.

What have we done so far?

Our team of 14 graduate students from the University of Wisconsin-Madison conducted assessments in numeracy and executive functioning with 186 full-day students and 300 half-day students between September 28 and October 29, 2021. We visited 45 classes in 19 schools. We also analyzed assessment data on literacy and socioemotional learning routinely collected by MMSD staff.

Who enrolls in full- and half-day 4K classrooms?

The District offered full-day 4K programming at schools that serve relatively high numbers of students of color and students from families that are economically constrained. See demographics table. Students across full- and half-day classrooms in our sample have different demographic characteristics, as a result of the intentional program design. On average, students in half-day classrooms are more likely to be white, have parents with a higher average educational level, and be eligible for free/reduced-priced lunch. However, similar percentages of students are English language learners (ELL) across the two groups.

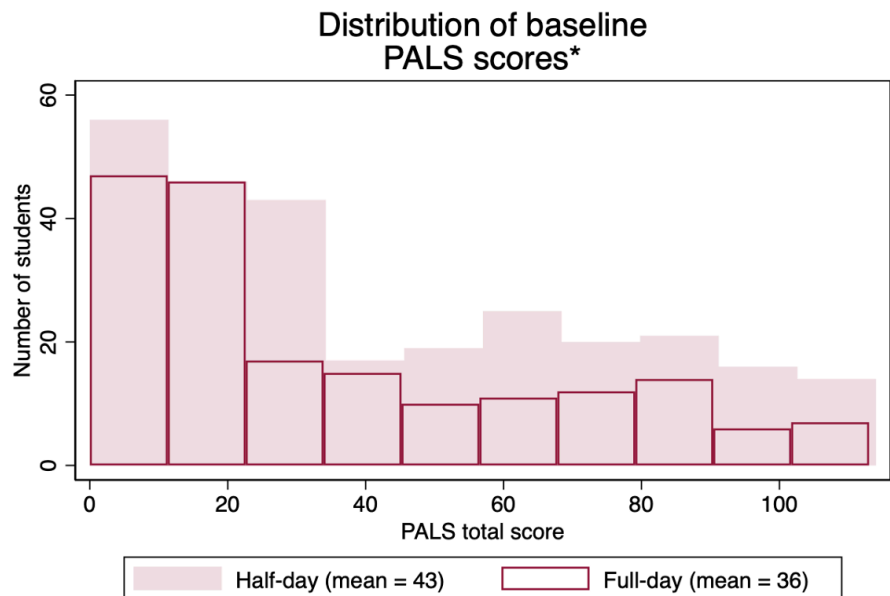
Demographics of Sample	Half-day #	Full-day #
White	120 (40%)	41 (22%)
Black/African-American	58 (19%)	60 (32%)
Latino	55 (18%)	60 (28%)
Asian	23 (8%)	9 (5%)
Two or more races	42 (14%)	23 (12%)
English Language Learning	79 (26%)	60 (32%)
Parental education above high school	225 (79%)	179 (62%)
Free/reduced lunch eligible	136 (45%)	118 (63%)
Female students	165 (55%)	89 (48%)

How do the skills students have at the start of 4K vary across full- and half-day programs?

We find small differences in average levels of achievement around the time students begin 4K. Consistent with the District’s intent, students starting the year in half-day classrooms on average scored higher than their full-day peers on all measured domains. However, the differences between groups are small, and a large portion of students in full- and half-day classrooms score in similar ranges. Therefore, these small baseline differences do not undermine the evaluation design.

We measured early literacy using the [Phonological Awareness Literacy Assessment \(PALS\)](#). 4K teachers administer PALS one-on-one with students, evaluating students’ alphabet knowledge, sound and print awareness, and writing ability. As seen in Figure 1, on average, full-day students scored ~7-points lower than half-day students on PALS.

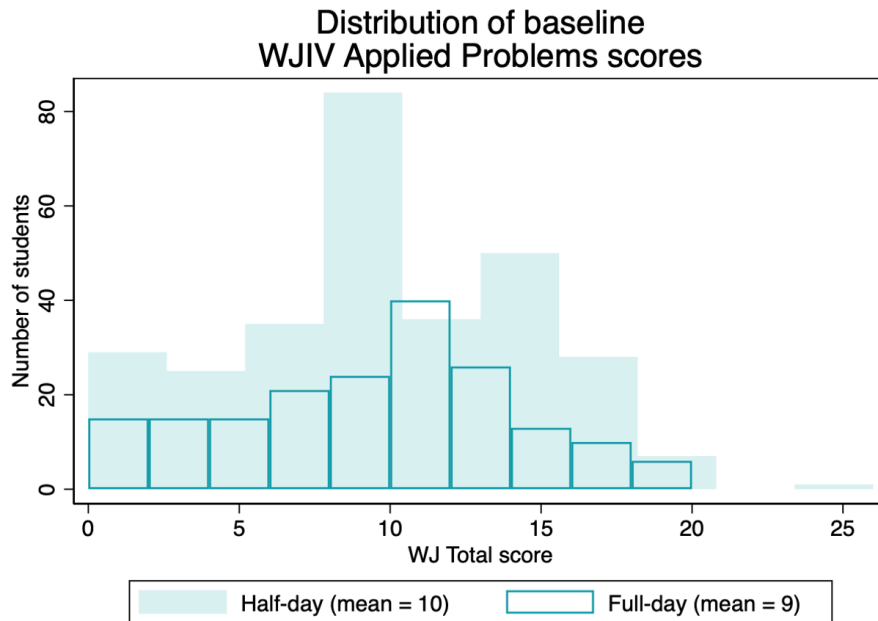
Figure 1: Distribution of PALS scores for full- and half-day students



*One classroom in our sample do not have PALS scores, so are not included in this analysis.

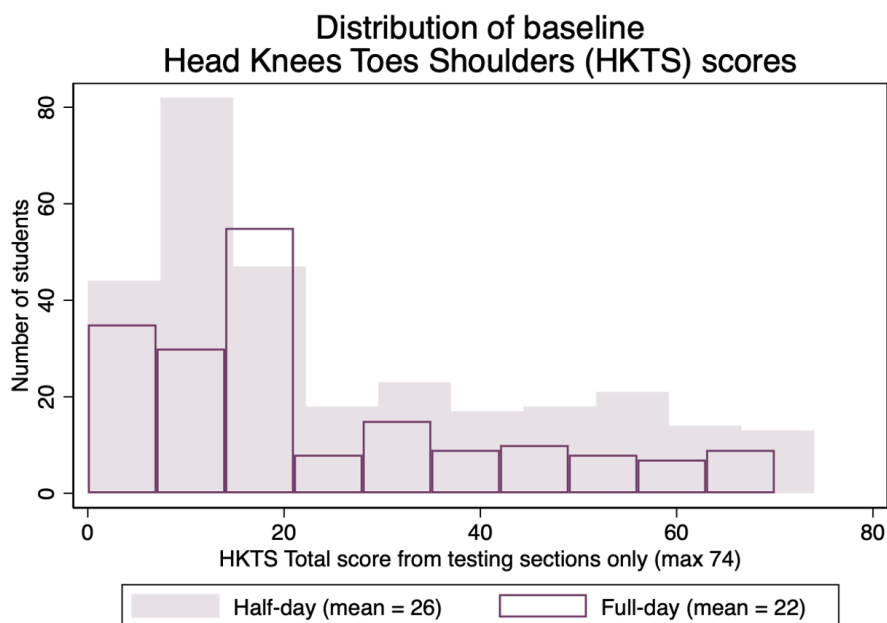
We measured early numeracy using the [Woodcock-Johnson IV Achievement - Applied Problems \(WJIV\)](#) assessment. Our team of graduate students conducted WJIV one-on-one with students to assess their ability to assess their number recognition, counting, and ability to solve basic math problems. The difference in baseline scores between full- and half-day students was small (~1-point).

Figure 2: Distribution of WJIV-Applied Problems scores for full- and half-day students



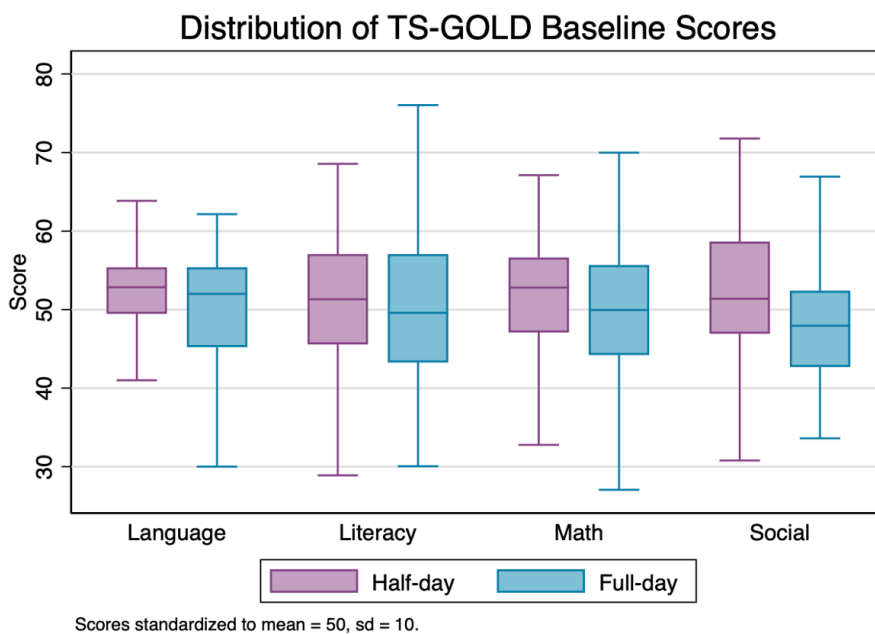
We also measured baseline executive functioning using the [Head Knees Toes Shoulders-Revised \(HKTS\)](#) assessment. As with the WJIV, our graduate students administered the HKTS which assesses students' self-regulation, working memory, and attention span. As with literacy and numeracy, full-day students scored lower on average than half-day students (~6-points).

Figure 3: Distribution of HKTS scores for full- and half-day students



Finally, we analyzed domains assessed using [Teaching Strategies- GOLD \(TS-GOLD\)](#). Unlike the one-on-one assessments used above, TS-GOLD is an observational tool. During class time, teachers record whether a given student has reached certain objectives in six domains: language, literacy, math, social-emotional skills, cognitive skills, and motor skills. Similar to other measures, full-day students scored lower on most domains measured in TS-GOLD.

Figure 4: Distribution TS-GOLD domain scores for full- and half-day students



As discussed above, the differences in baseline skills of full- and half-day students is in line with the district’s intent in serving students with the highest need for full-day 4K. Further, these differences are small and we see a large overlap in baseline skill-level of students in full- and half-day classrooms. This will allow us to glean meaningful insight on the differences in learning between full- and half-day students over the course of the year.

What’s Next:

We will be back in classrooms in May to conduct the spring assessments and will release our final report on differences in student learning in the summer of 2022.

Want to know more about MEP and 4K?
 Here’s a [comprehensive list of our previous early education work](#).