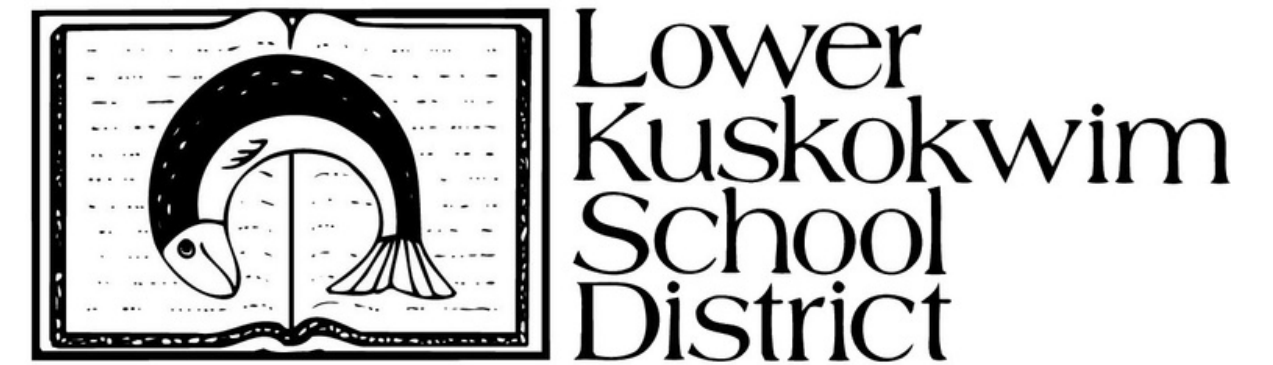iTutor®

iTutor Students Demonstrate Significant Gains on a Standardized Measure of Math

Overview

From 2017–2019, **iTutor partnered with the Lower Kuskokwim School District (LKSD) in Alaska to provide supplemental math instruction** for students in Grades 4–7 during SY 2017–18, and Grades 5–8 during SY 2018–19.

The partnership was made possible through the Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) grant, designed to encourage postsecondary education enrollment for low-income students. In LKSD, 97% of students identify as of the First Nation and 90% qualify for free and reduced lunch. The GEAR UP program in LKSD serves students experiencing barriers accessing educational services, including transportation issues and lack of sewage lines or running water. **Through this partnership, students were afforded internet access, live tutoring sessions with certified educators, and supplemental math instruction.**

iTutor students received targeted math instruction from a certified educator for two hours per week. **To ensure culturally responsive education, iTutor educators received professional development focused on cultural norms and traditions of the population served.**

During the 2017–18 SY, 217 students participated. **The intervention expanded the following year to reach 323 students.** Students were placed in small groups (n=4) based on baseline assessment performance to appropriately individualize instruction.

Of participating students, **78 completed both a pre and post assessment in SY 2017−18, and 81 completed both in SY 2018−19**. These subsamples were retained for all analyses.

During the 2017−18 academic year, the intervention ran for six weeks and students received an average of 4.5 hours of synchronous instruction. This increased substantially the following academic year, in which the intervention ran for eight months with an average of 10.9 hours of instruction received. To measure growth in math achievement, iTutor analyzed Scantron® Performance Series Assessment data from the beginning and end of program administrations across both academic years.

Lower Kuskokwim School District, AK

Group	n	Avg. Hrs.
2017–2018	78	4.5
Grade 4	29	4.1
Grade 5	20	4.4
Grade 6	17	4.8
Grade 7	11	3.0
2018–2019	81	10.9
Grade 5	30	11.4
Grade 6	21	9.6
Grade 7	10	11.8
Grade 8	20	10.8

Impact

Figure 1. Average Normal Curve Equivalent (NCE) from Pre to Post Test, 2017–2018 iTutor Students, Grades 4–7 (*n* = 78)
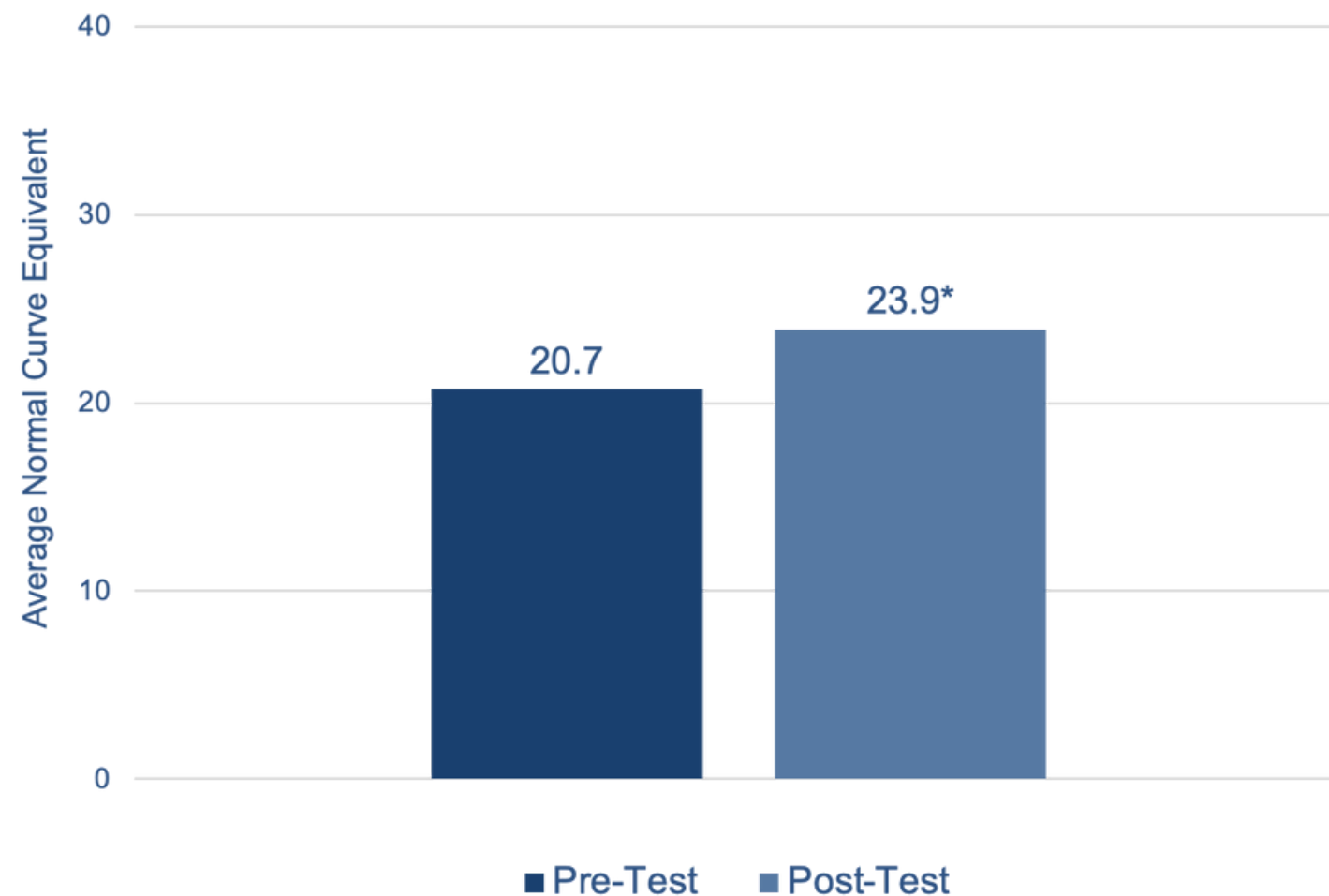
Note: ***$p < .001$, **$p < .01$, *$p < .05$

iTutor students demonstrated growth from pre (M=2306) to post (M=2339) test during SY 2017−18. Though scaled score growth during the first year was not statistically significant, **students achieved statistically significant gains in their Normal Curve Equivalent (NCE) scores, $p < .05$ (Figure 1).** Gains in NCE scores indicate students are progressing at a faster rate than their national peers. These data suggest iTutor students were able to quickly make gains and progress towards grade level content. These outcomes are encouraging, given the short intervention period and limited instructional hours received, but may also highlight more intensive instruction (i.e., higher dosage) is necessary to demonstrate statistically significant gains in math achievement.

The following academic year, iTutor students demonstrated statistically significant gains from pre to post-test, p < .001.

Though all groups of students demonstrated gains, on average, students who received greater than five instructional hours of iTutor services demonstrated larger gains (M=137), than students receiving fewer than five hours (M=98) (Figure 2).

Figure 2. Average Scaled Score from Pre to Post Test by Instructional Hours Received, 2018–2019 iTutor Students, Grades 5–8 ($n = 81$)

Note: ***$p < .001$, **$p < .01$, *$p < .05$
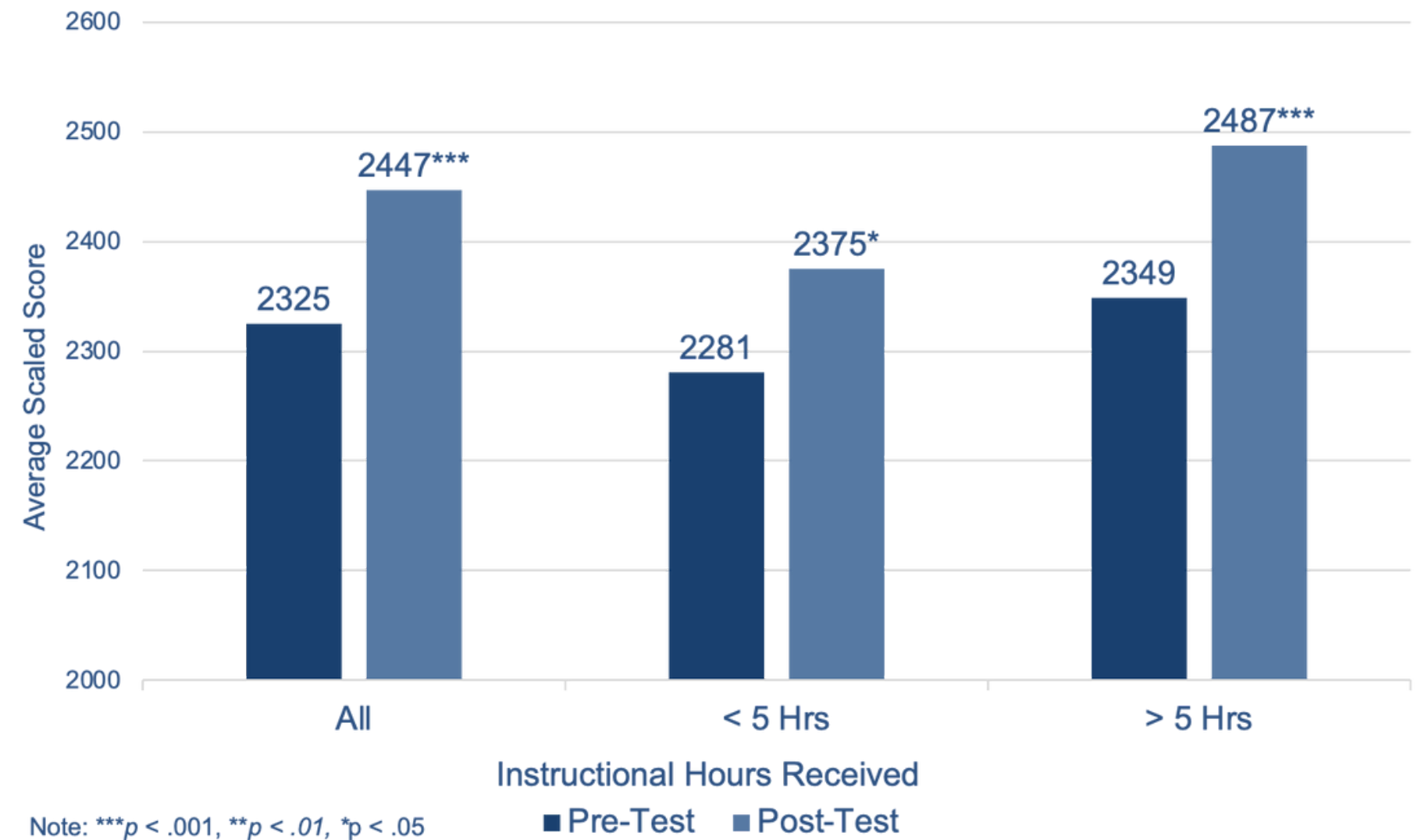
When disaggregated by grade, all grades demonstrated significant improvement from pre to post-test, except for students in seventh grade (Figure 3)**.** Notably, this group also had the smallest sample (n=10) of all grades. Students again demonstrated significant gains in their NCE scores from pre to post, indicating progress towards grade level content, p < .01 (Figure 4).

Figure 3. Average Scaled Score from Pre to Post Test by Grade, 2018–2019 iTutor Students, Grades 5–8 (*n* = 81)
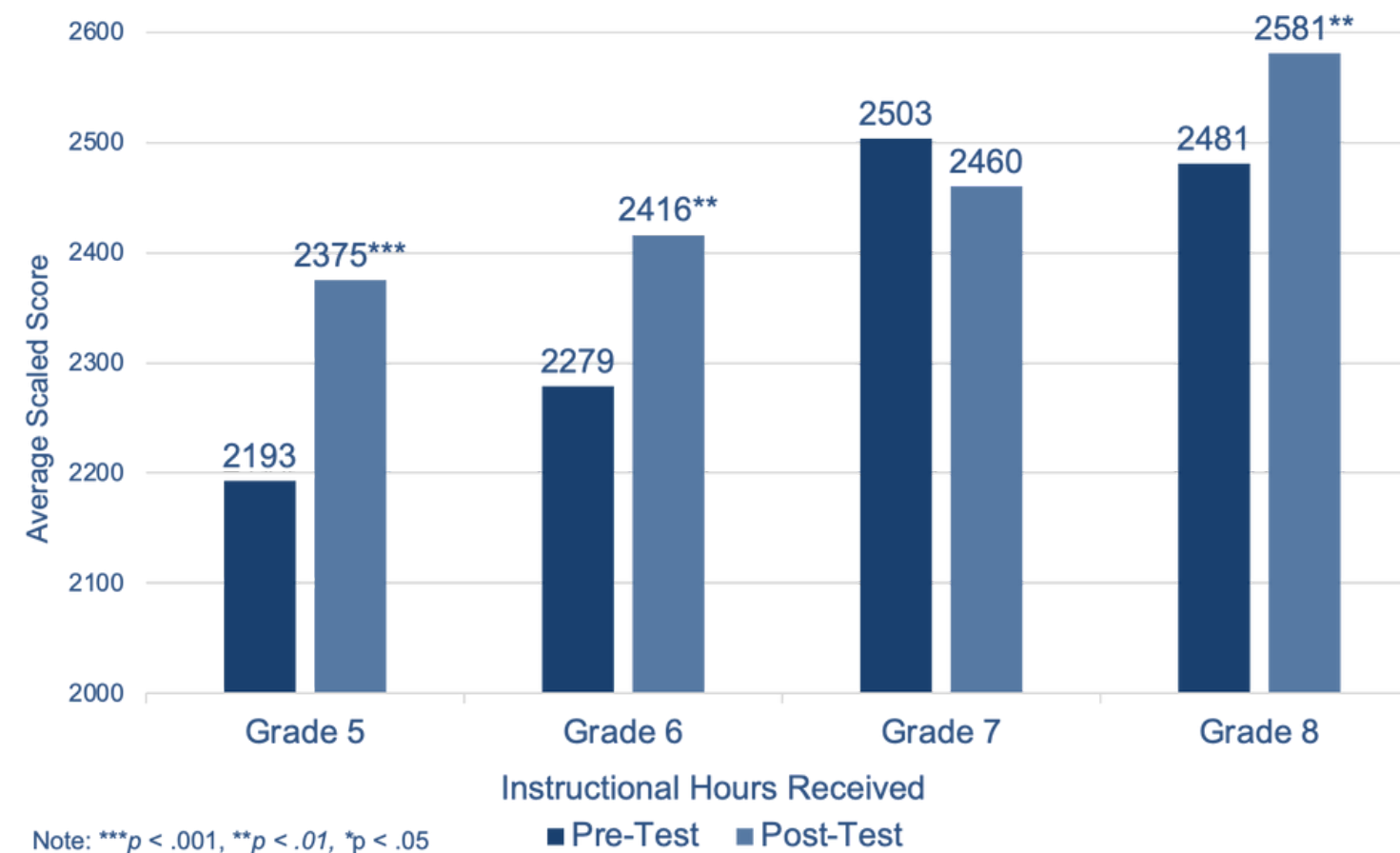

Average Scaled Score

- Grade 5: 2193 (Pre-Test), 2375*** (Post-Test)
- Grade 6: 2279 (Pre-Test), 2416** (Post-Test)
- Grade 7: 2503 (Pre-Test), 2460 (Post-Test)
- Grade 8: 2481 (Pre-Test), 2581** (Post-Test)

Instructional Hours Received
■ Pre-Test ■ Post-Test

Note: ***p < .001, **p < .01, *p < .05

Figure 4. Average Normal Curve Equivalent (NCE) from Pre to Post Test, 2018–2019 iTutor Students, Grades 5–8 (*n* = 81)

Average Normal Curve Equivalent

- Pre-Test: 23.6
- Post-Test: 29.3**

■ Pre-Test ■ Post-Test

Note: ***p < .001, **p < .01, *p < .05
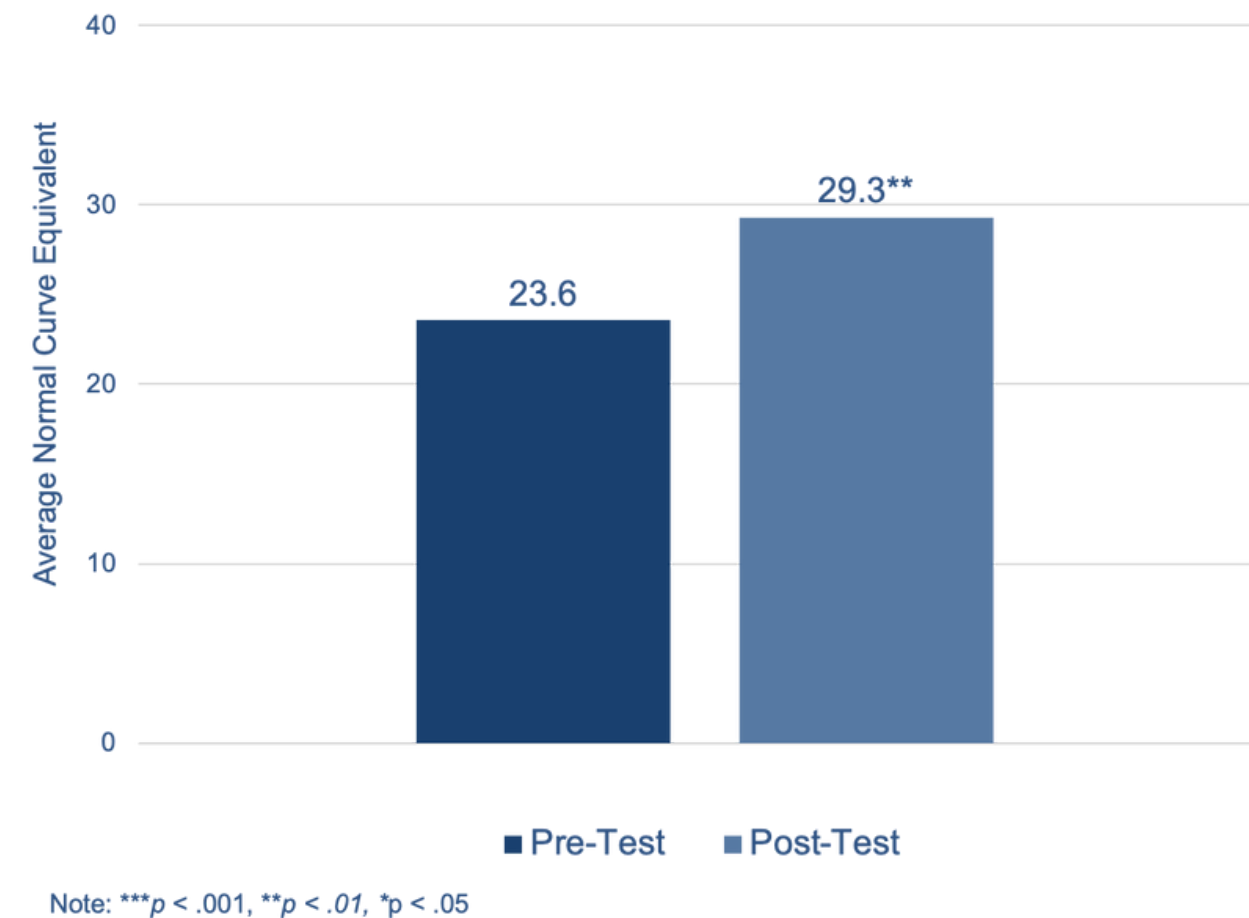
Further analysis of both cohorts revealed a significant relation between the amount of instructional hours received and performance on post-test, controlling for pretest scores, $p < .05$. Results may indicate students who receive more instructional hours demonstrate greater gains on a measure of math achievement. For students performing below grade level, this limited, but targeted, instruction may have the ability to quickly scale students toward grade-level content.

These results highlight the potential ability of virtual instruction to not only remove access barriers but to provide high-quality instruction capable of encouraging significant academic gains for students.

iTutor®

iTutor is the leading provider solving teacher shortages in K-12 education with educators certified in all 50 states.

Connect with an education consultant in your region to learn more at **iTutor.com/Meet**