Where Struggling Readers Are: School, Division and Region Differences in End-of-Year CRLA Results, SY 2025–2026

Mark Anthony Llego

NASH Reviewer, Philippines

NASH Reviewer Research Report No. 4 · Version 1.0 · November 2026

DOI: https://doi.org/10.5281/zenodo.24623292

Suggested citation: Llego, M. A. (2026). *Where struggling readers are: School, division and region differences in end-of-year CRLA results, SY 2025–2026* (NASH Reviewer Research Report No. 4). NASH Reviewer. https://doi.org/10.5281/zenodo.24623292

© 2026 Mark Anthony Llego. This report is licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License (CC BY-NC-ND 4.0). NASH Reviewer is not affiliated with the Department of Education (DepEd) or the Second Congressional Commission on Education (EDCOM II).

Abstract

In the end-of-year Comprehensive Rapid Literacy Assessment (CRLA) for School Year (SY) 2025–2026, 511,753 of 5,127,670 Grade 1–3 learners (10.0%) in 38,679 Philippine public schools were struggling readers. Their share is compared across schools, divisions and regions, from the EDCOM II dashboard's school results. In a three-level Bayesian binomial model, 65% (95% interval 57% to 71%) of the between-school variation on the log-odds scale lay between schools in the same division, 22% (17% to 26%) between divisions in the same region and 13% (6% to 25%) between regions. The median odds ratio was 3.19 for two schools in one division, 1.95 for two divisions in one region and 1.68 for two regions; fitted separately, the five grade-and-language blocks split almost identically to one another (69% to 70% within divisions), with wider spreads between schools (median odds ratios 3.74 to 3.91). Half of all struggling readers were in 3,475 schools (9.0% of schools); the 10% of schools with the most held 52.7% of them and 34.0% of learners. Supporting 1,000 schools chosen by number of struggling readers reached 25.4% of them, and by raw share 9.2%, because share-based lists fill with small schools. Overall, 8,543 schools (22.1% of schools) reported no struggling reader, 1.14 times the 7,490 expected under regional beta-binomial models in which schools differ (0.97 to 1.68 by region). Regional and division averages hide most differences between schools, counts and shares together place support better, and a reported zero calls for a records check, not a finding of error.

Keywords: early-grade reading; Comprehensive Rapid Literacy Assessment; struggling readers; multilevel model; median odds ratio; variance partition; concentration; Philippines

1. Introduction

The Department of Education (DepEd) defines the Comprehensive Rapid Literacy Assessment (CRLA) as "a standardized reading assessment tool administered by the Department of Education for Grades 1 to 3 learners, grouping them into Low Emerging, High Emerging, Developing, Transitioning, and At Grade Level reading profiles based on reading proficiency standards" (Department of Education [DepEd], 2025b, Enclosure, Sec. III, item 2). It is given at the beginning, middle and end of the school year (DepEd, 2025a, Enclosure No. 2, Sec. II, item 3.2). For the 2026 summer programs, the end-of-year results "shall serve as the basis for identifying learners who will participate in the ARAL Summer Programs" (DepEd, 2026, Enclosure, para. 26), and ARAL Summer-Reading covered "incoming Grades 2, 3, and 4 learners at the Emerging levels" (DepEd, 2026, Enclosure, para. 14).

The Second Congressional Commission on Education (EDCOM II) published the end-of-year results for SY 2025–2026 school by school on its early childhood dashboard (Second Congressional Commission on Education [EDCOM II], 2026). Report No. 1 in this series described them nationally, by region and by division (Llego, 2026b): 10.0% of learners were struggling readers, regional shares ranged from 5.3% in the National Capital Region (NCR) to 23.4% in the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM), and division shares from 0.1% to 46.3%.

These ranges do not show at which level the differences sit. A region's share averages its divisions and a division's share averages its schools, so a gap between two regions may come from a few divisions within them, and a school that assessed few learners can show a high or low share by chance alone. Where the differences sit decides how much a regional or division average says about the schools under it, and so whether support aimed by those averages reaches the schools that need it.

The report asks three questions of the same results. How is the variation between schools in the share of struggling readers divided among schools within divisions, divisions within regions and regions, for all learners and in each grade and language? How concentrated are struggling readers across schools and divisions, and how many do different ways of choosing schools for support reach? And how does the number of schools reporting no struggling reader compare with the number expected when schools differ, as a check on the records?

2. Data and methods

2.1 Data

The data are the school-level end-of-year CRLA results for SY 2025–2026 in public schools, as on the EDCOM II dashboard on May 10, 2026, extracted and cleaned by NASH Reviewer (Llego, 2026a); Report No. 1 describes the data and their coverage (Llego, 2026b). The analysis covers the 38,679 schools with at least one learner assessed, with 5,127,670 learners, 93.8% of public Grade 1–3 enrollment, in 232 divisions and 18 regions. Regions follow the Philippine Standard Geographic Code, with Sulu counted in Region IX and the Negros Island Region (NIR) as its own region. A division is identified by its region and its name together: three names, San Carlos City, San Fernando City and Talisay City, each belong to two divisions in different regions, so the 232 divisions carry 229 names.

2.2 Measures

The dashboard reports five grade-and-language blocks: Grade 1 in the Mother Tongue, Grade 2 in the Mother Tongue and in Filipino, and Grade 3 in Filipino and in English. A struggling reader is a learner at Low Emerging or High Emerging. For all learners together, each learner is counted once, Grade 1 by the Mother Tongue result, Grade 2 by Filipino and Grade 3 by English, which gives 511,753 struggling readers, 10.0% of the 5,127,670 learners. A school's share of struggling readers is its struggling readers divided by the learners it assessed, counted the same way, and a block's share uses that block's own counts. A school enters a block only if it assessed learners in it (Table 2 gives the number of schools in each). Blank counts on the dashboard are read as zero. School size means the learners assessed, counted once, not enrollment.

2.3 The three-level model

Each school's count of struggling readers was modeled as binomial, given the learners it assessed and an underlying rate whose log-odds is the sum of an overall level and three effects: one for the school's region, one for its division within the region and one for the school within its division. Each set of effects is normal with its own standard deviation, σ_R for regions, σ_D for divisions and σ_S for schools. School effects are centered within each division, so that the division effect alone carries the division's level. The overall level has a normal prior with

mean −2.2, close to the log-odds of the national share of 10.0%, and standard deviation 1.5. Each standard deviation has a half-normal prior with scale 1, which allows large differences on the log-odds scale without favoring them. The model has no other terms.

The model was fitted to all learners and to each block separately in PyMC (Abril-Pla et al., 2023), with the No-U-Turn Sampler (Hoffman & Gelman, 2014) as implemented in nutpie: four chains, each with 1,500 tuning iterations and 2,000 kept draws, for 8,000 draws per fit. The Grade 2 Filipino fit kept 1,000 draws a chain, 4,000 in all. A fit was accepted only if the rank-normalized R-hat was at most 1.01 and the bulk and tail effective sample sizes at least 400 (Vehtari et al., 2021) for the overall level and the three standard deviations, and, in the all-learners fit, for the 18 region and 232 division effects as well. Across the six fits the largest R-hat was 1.007 and the smallest effective sample size 455, and no fit had a divergent transition.

Every summary was computed draw by draw, so it carries the uncertainty in all three standard deviations; point estimates are posterior means and intervals are equal-tailed 95% credible intervals. A level's share of the variation between schools is its variance divided by the sum of the three variances. Its share of all variation adds to that sum the variance among learners in the same school on the latent logistic scale, fixed at $\pi^2/3$ (Goldstein et al., 2002; Snijders & Bosker, 2012). The three levels together then give the between-school share of all variation, which is also the correlation on that scale between two learners in the same school. The median odds ratio of a level, $\exp(\sqrt{(2\sigma^2)} \times 0.6745)$, is the median ratio of the higher odds of struggling to the lower when two units are drawn at random from that level (Larsen & Merlo, 2005; Larsen et al., 2000; Merlo et al., 2006). The posterior probability that σ_D exceeds σ_R compares the two upper levels.

The all-learners fit was checked against data simulated from it (Gelman et al., 2013). The check read the fit's draws of the overall level, the standard deviations and the region and division effects; given each draw, a school's effect was drawn from a normal (Laplace) approximation to its posterior. From the first 200 of 1,000 draws spaced evenly through the 8,000, all of them from the first chain, 200 replicate data sets were simulated and compared with the data on two features: the share of schools with no struggling reader, and the standard deviation of school shares among schools with 30 or more learners assessed.

2.4 Concentration and targeting

Schools were ranked by their number of struggling readers, ties going to the larger school, and the shares of the national 511,753 held by the top 1%, 5%, 10% and 20% of the 38,679 schools were set beside their shares of the 5,127,670 learners. The schools for half are the smallest number of top-ranked schools whose struggling readers reach half the national total. Lorenz curves (Lorenz, 1905) and the Gini index (Gini, 1912), one minus twice the area under the curve, describe the counts across schools, learners across schools and counts across the 232 divisions. To set school size aside, schools were also ordered by their share struggling and the cumulative share of struggling readers was set against the cumulative share of learners. The index of this concentration curve (Wagstaff et al., 1991) is the Gini index of school shares with each school weighted by its learners.

A simulation compared four rules for choosing a fixed number of schools for support (100, 500, 1,000, 2,000, 5,000 or 10,000): the highest raw share struggling, the highest empirical Bayes share, the most struggling readers, and count × rate, the number of struggling readers times the share. Ties went to the larger school, and each rule was scored by the share of the national total of struggling readers in the schools it chose. The empirical Bayes share of a school with y struggling readers among n learners is $(y + \kappa\mu)/(n + \kappa)$, where μ is its region's pooled share and κ is fitted for each region by maximum likelihood under a beta-binomial model (Casella, 1985). The estimate pulls a school's share toward its region's, more strongly the fewer learners the school assessed. These estimates agreed closely with school estimates from the three-level model: the correlation was 0.996 and the median absolute difference 0.4 percentage points. Every rule is built and scored on the same year's results, so the simulation compares the rules on SY 2025–2026 and does not forecast next year's struggling readers.

Each school's share was also set against funnel limits around the national share from a beta-binomial model with one national κ, so that the limits allow for the ordinary spread between schools as well as chance (Spiegelhalter, 2005). Two-sided tail probabilities from the same model were adjusted with the Benjamini–Hochberg procedure at a false discovery rate of 5% (Benjamini & Hochberg, 1995).

2.5 Schools with no struggling reader

For each region, a beta-binomial model with the region's pooled share as its mean and κ fitted by maximum likelihood, the same κ as in Section 2.4, lets every school have its own underlying rate (Skellam, 1948). Under it, a school with n learners reports no struggling reader with probability $B(a, b + n)/B(a, b)$ and only struggling readers with probability $B(a + n, b)/B(a, b)$, where B is the beta function, $a = \mu\kappa$ and $b = (1 - \mu)\kappa$. Summing these probabilities over schools gives the expected numbers, by size band and by region, and the ratio of observed to expected compares the records with the model. A binomial model that gives every school its region's share, with probability $(1 - \mu)^n$ of no struggling reader, shows what would be expected if the schools in a region were alike. Two further counts look for patterns that can arise in recording: schools with 20 or more learners assessed whose At Grade Level count equals the number assessed, and schools assessed in both Grade 2 blocks, with at least 10 learners in Grade 2 Mother Tongue, whose counts in the two blocks are identical at all five levels.

The analysis was done in Python with pandas, NumPy, SciPy, PyMC and ArviZ, and the charts were drawn with Matplotlib; random draws use a fixed seed (20251025). National and regional shares count the learners assessed and carry no sampling intervals; a model interval shows how firmly the data determine a quantity under the model.

3. Results

3.1 Where the variation lies

For all learners, the standard deviation of schools' log-odds of struggling was 1.21 (95% interval 1.20 to 1.23) among schools in the same division, 0.70 (0.63 to 0.77) among divisions in the same region and 0.54 (0.35 to 0.80) among regions (Table 1). Of the variation between schools, 65% (57% to 71%) therefore lay between schools in the same division, 22% (17% to 26%) between divisions in the same region and 13% (6% to 25%) between regions (Figure 1). The region share is the least certain, because 18 regions give little to estimate their spread from. Since the three shares add up to the whole, that uncertainty also widens the interval of the school share, although the school-level standard deviation itself is closely determined.

Table 1. Three-level model of struggling readers for all learners, 38,679 schools: spread, shares of variation and median odds ratios by level

Level	Standard deviation, log-odds	Share of the variation between schools	Share of all variation (latent scale)	Median odds ratio
Regions	0.54 (0.35–0.80)	13% (6–25)	5% (2–11)	1.68 (1.40–2.14)
Divisions within a region	0.70 (0.63–0.77)	22% (17–26)	9% (7–11)	1.95 (1.83–2.09)
Schools within a division	1.21 (1.20–1.23)	65% (57–71)	27% (25–28)	3.19 (3.15–3.23)
All three levels			**41% (39–44)**	

Note. Posterior means with equal-tailed 95% credible intervals in parentheses, from 8,000 draws. The share of all variation adds the learner-level variance $\pi^2/3$ to the denominator. Median odds ratio = $\exp(\sqrt{(2\sigma^2)} \times 0.6745)$. Learners are counted once (Grade 1 Mother Tongue, Grade 2 Filipino, Grade 3 English). Data: EDCOM II early childhood dashboard, May 10, 2026, cleaned by NASH Reviewer (Llego, 2026a).

Two schools drawn at random from the same division differed in their odds of struggling by a median factor of 3.19 (3.15 to 3.23), two divisions in the same region by 1.95 (1.83 to 2.09) and two regions by 1.68 (1.40 to 2.14) (Figure 2). For scale, odds 3.19 times those of a school at the national share of 10.0% correspond to a share of

about 26%. The school interval lay wholly above the division and region intervals. The division and region intervals overlapped, so the data do not firmly rank those two levels; the posterior probability that divisions within a region vary more than regions do was 0.90.

Against all the variation among learners on the latent scale, 41% (39% to 44%) lay between schools: 5% between regions, 9% between divisions and 27% between schools in the same division. The rest lay among learners who share a school. The 65% above is a share of that 41%.

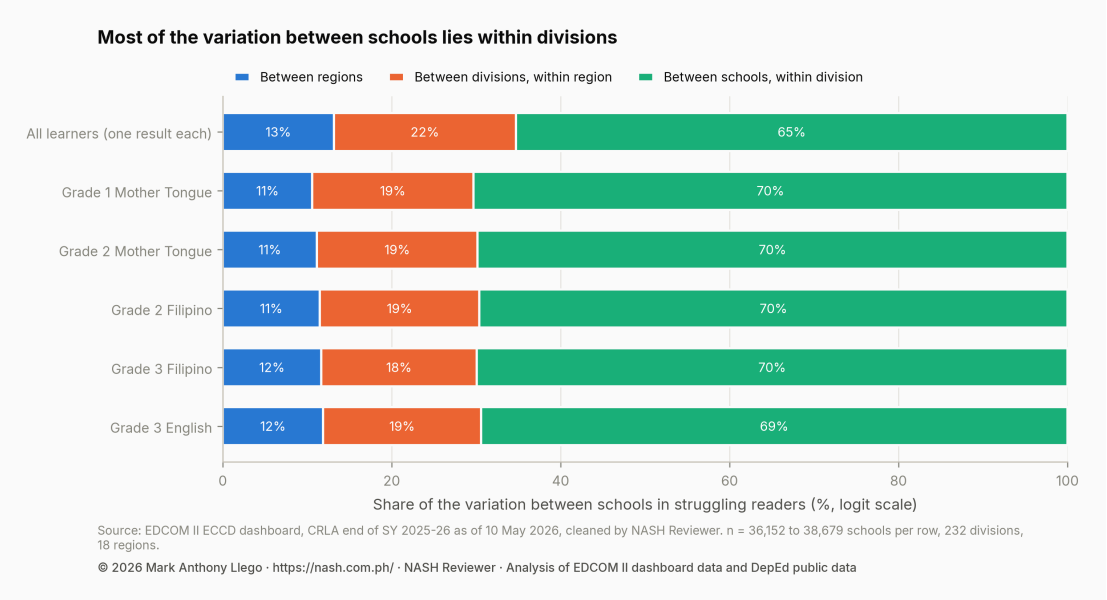

Figure 1. Share of the variation between schools in the share of struggling readers (log-odds scale) that lies between regions, between divisions in the same region and between schools in the same division, for all learners and for each grade-and-language block.

3.2 Grades and languages

Each of the five grade-and-language blocks, fitted on its own, split in nearly the same way (Table 2). The school share of the variation between schools ranged from 69% to 70% across the blocks, the division share from 18% to 19% and the region share from 11% to 12%. The division share was the larger of the two upper levels in every fit, and the posterior probability that divisions vary more than regions ranged from 0.89 to 0.93. Grade 1 Mother Tongue, the block with the largest share of struggling readers (14.4% of its learners), split in almost the same proportions as Grade 3 Filipino, the block with the smallest (5.6%) (Llego, 2026b).

The spread between schools in the same division was wider in every block than for all learners together. The median odds ratio for two schools in a division ran from 3.74 in Grade 1 Mother Tongue to 3.91 in Grade 3 English, against 3.19, and the between-school share of all variation from 45% to 47%, against 41%. Pooling three grades may average out part of what is particular to one grade in a school, such as one class, its teacher or the day the screen was given. The data cannot test that reading. The model's weaker fit to schools with no struggling reader (Section 3.3), which are more common when a block has fewer learners per school, may also contribute.

Table 2. Shares of the variation between schools, median odds ratio for two schools in the same division, and the between-school share of all variation, by grade and language

Grade and language	Schools	Region share	Division share	School share	School median odds ratio	Between-school share of all variation	$P(\sigma_D > \sigma_R)$
All learners (one result each)	38,679	13% (6–25)	22% (17–26)	65% (57–71)	3.19 (3.15–3.23)	41%	0.90
Grade 1 Mother Tongue	38,234	11% (5–21)	19% (16–23)	70% (62–76)	3.74 (3.68–3.79)	45%	0.93
Grade 2 Mother Tongue	36,152	11% (5–21)	19% (15–23)	70% (62–75)	3.82 (3.75–3.89)	46%	0.91
Grade 2 Filipino	37,227	11% (5–23)	19% (15–23)	70% (61–75)	3.81 (3.74–3.88)	46%	0.90
Grade 3 Filipino	37,589	12% (5–22)	18% (15–22)	70% (61–76)	3.80 (3.73–3.88)	46%	0.89
Grade 3 English	37,860	12% (5–22)	19% (15–22)	69% (61–75)	3.91 (3.84–3.98)	47%	0.89

Note. Shares are of the variation between schools on the log-odds scale; posterior means with 95% credible intervals in parentheses. The school median odds ratio is for two schools in the same division; $P(\sigma_D > \sigma_R)$ is the posterior probability that divisions within a region vary more than regions. Each block was fitted separately on the schools that assessed learners in it. The Grade 2 Filipino fit kept 4,000 draws, the others 8,000. The median odds ratios for divisions and regions are in Figure 2. Data: as in Table 1.

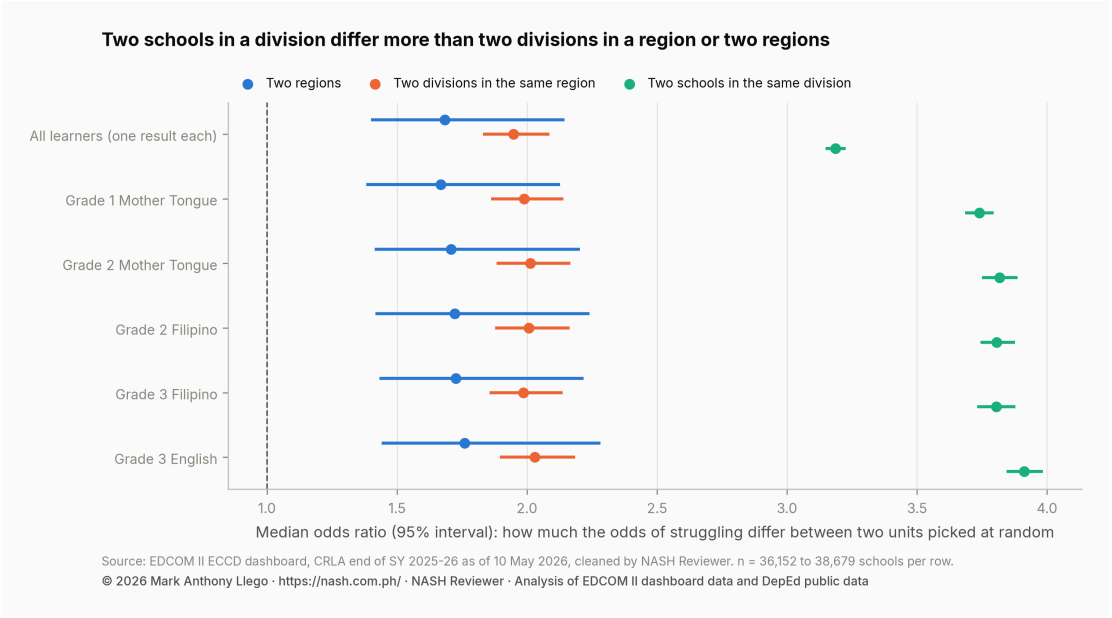

Figure 2. Median odds ratios, with 95% intervals, for two regions, two divisions in the same region and two schools in the same division, for all learners and each grade-and-language block.

3.3 How well the model fits

Data simulated from the all-learners fit reproduced the spread of school shares. Because each simulated school starts from its own posterior rate, that is a check this design passes easily, unlike the zeros. Among schools with 30 or more learners, the standard deviation of their shares was 12.3 percentage points in the data and 12.3 to 12.4 in the middle 95% of the 200 simulated data sets. The simulations did not reproduce the zeros: 22.1% of schools reported no struggling reader, against 15.5% to 16.1% in the simulations. Normal school effects on the log-odds scale leave few schools with an underlying rate very close to zero, so the model describes most schools well and the schools at zero less well. Section 3.6 sets the zeros against a second model.

3.4 How concentrated struggling readers are

Half of the 511,753 struggling readers were in 3,475 schools, 9.0% of the 38,679 schools (Table 3). The 1% of schools with the most struggling readers (387 schools) held 14.0% of them and 7.5% of the learners assessed. The top 10% (3,868 schools) held 52.7% of the struggling readers and 34.0% of learners, and the top 20% (7,736

schools) held 71.3% and 48.5%. At the other end, 8,543 schools (22.1% of schools) reported none.

Table 3. Concentration of the 511,753 struggling readers across schools and divisions, end of SY 2025–2026

Schools or divisions, ranked by number of struggling readers	Number	Share of struggling readers	Share of learners assessed
Top 1% of schools	387	14.0%	7.5%
Top 5% of schools	1,934	36.9%	23.0%
Top 10% of schools	3,868	52.7%	34.0%
Top 20% of schools	7,736	71.3%	48.5%
Fewest schools holding half (9.0% of schools)	3,475	half	32.0%
Schools reporting none (22.1% of schools)	8,543	none	11.5%
Top 10% of divisions	23	39.6%	30.2%
Fewest divisions holding half	33	half	38.4%

Note. 38,679 schools with at least one learner assessed and 232 divisions; learners counted once; ties in count go to the larger school or division. Gini index of struggling-reader counts: 0.70 across schools and 0.57 across divisions; of learners across schools, 0.56. Concentration index of struggling readers across learners, schools ordered by share struggling: 0.52. Data: as in Table 1.

Part of this concentration is school size. The Gini index of struggling-reader counts across schools was 0.70; for learners across schools it was 0.56, the value the counts would have if every school had the same share struggling. The rise from 0.56 to 0.70 reflects differences in shares between schools, including the schools that report none. With schools ordered by their share struggling, the concentration index of struggling readers across learners was 0.52 (Figure 3): struggling readers were clustered among the learners of high-share schools even with school size set aside.

Across divisions the Gini index of counts was 0.57. The 23 divisions with the most struggling readers, the top 10% of the 232, held 39.6% of them, and 33 divisions held half. The five largest counts were in Camarines Sur, Maguindanao del Norte, Cebu, North Cotabato and Zamboanga City, in that order; a division's count reflects its size as well as its share.

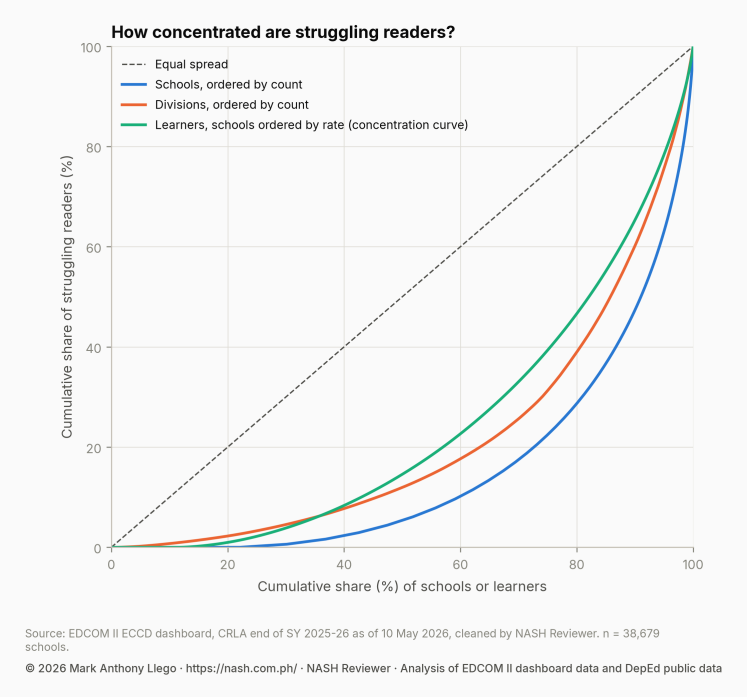

Figure 3. Lorenz curves of struggling readers across the 38,679 schools and across the 232 divisions, each ordered by count, and the concentration curve of struggling readers across learners with schools ordered by their share struggling, against the diagonal of an equal spread.

The 3,868 schools of the national top 10% were spread unevenly across regions. BARMM had the most, 461 of its 1,469 schools (31.4%), followed by Region IV-A (409) and Region XII (362). In NCR, 257 of 520 schools (49.4%) were in the group, although NCR had the lowest regional share of struggling readers, 5.3% (Llego, 2026b): its 469,125 learners assessed attend comparatively few, large schools. Region VIII, with the most schools of any region, had 73 of its 3,656 (2.0%) in the group, and CAR had 22 of its 1,500 (1.5%).

3.5 Choosing schools for support

With support for 1,000 schools, choosing the schools with the most struggling readers reached 25.4% of the national total (129,794 learners), choosing by count × rate 21.3%, by empirical Bayes share 10.6% and by raw share 9.2% (Table 4, Figure 4). The count rule must reach the most for any number of schools, because the score is itself a count, so it marks the ceiling for this year's data. The two rules that use shares alone stayed well below the two that use counts at every number of schools from 100 to 10,000.

School size explains the gap. The median school among the 1,000 chosen by raw share had 60 learners assessed, against 588 under the count rule, 201 under count × rate and 71 under the empirical Bayes rule; the median school overall had 71. The share-based lists found intense need: 59.0% of the learners in the 1,000 schools chosen by raw share were struggling readers, against 17.1% in those chosen by count and 30.6% in those chosen by count × rate.

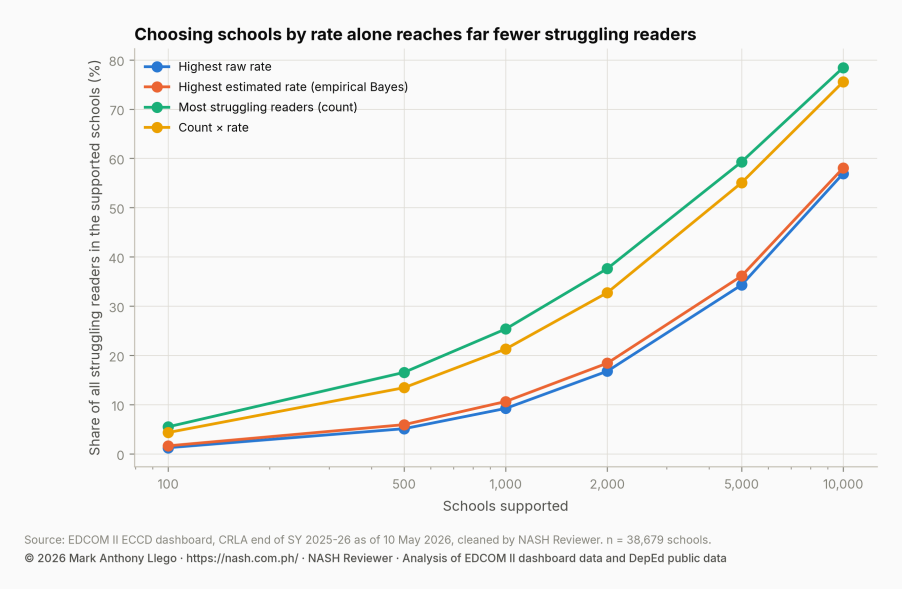

Figure 4. Share of all struggling readers who are in the schools chosen for support, by the number of schools supported (log scale) and the rule used to choose them.

Table 4. Struggling readers in the schools chosen for support under four rules, end of SY 2025–2026

Rule for choosing schools	Share reached, 100 schools	Share reached, 1,000 schools	Share reached, 10,000 schools	Struggling readers reached, 1,000 schools	Median learners assessed, 1,000 schools	Share of their learners struggling, 1,000 schools
Highest raw share	1.3%	9.2%	56.9%	47,243	60	59.0%
Highest empirical Bayes share	1.6%	10.6%	58.1%	54,454	71	56.0%
Most struggling readers (count)	5.5%	25.4%	78.4%	129,794	588	17.1%
Count × rate	4.3%	21.3%	75.5%	108,982	201	30.6%

Note. "Share reached" is the share of the national 511,753 struggling readers who are in the chosen schools. Ties go to the larger school. The rules are built and scored on the same year's results. Results for 500, 2,000 and 5,000 schools are in Figure 4. Data: as in Table 1.

Small schools reach extreme shares by chance most easily. Among the 100 schools with the highest raw shares, 30 had assessed fewer than 30 learners; among the 100 with the highest empirical Bayes shares, 10 had. For 38.7% of schools, the data could not tell whether the underlying share was above or below the national share (an empirical Bayes posterior probability of being above it between 0.05 and 0.95). Against the funnel limits, 254 schools lay above the 99.8% limit, where about 48 would be expected, and 74 were flagged at a 5% false discovery rate, all with high shares. Of the 254, 106 were in BARMM: because the funnel compares every school with the national share, schools in high-share regions cross it more often.

3.6 Schools reporting no struggling reader

Of the 38,679 schools, 8,543 (22.1%), with 590,848 learners assessed between them, reported no struggling reader. The regional beta-binomial models expected about 7,490 such schools, so the observed number was 1.14 times the expectation. If every school in a region had the region's share, only 1,632 would be expected (Table 5). Most of the zeros are what schools that truly differ, many of them small, would produce.

The ratio of observed to expected was 1.1 or 1.2 in every size band. Among the 3,477 schools with 300 or more learners assessed, 192 reported none against 164 expected, and among the 10,338 with 100 to 299, 1,104 against 989; the binomial model expects almost none in either band. In a large school a zero cannot come from the few learners assessed, so the 1,296 schools with 100 or more learners and no struggling reader (1,153 expected) are where a recheck tells the most.

Table 5. Schools reporting no struggling reader and schools reporting only struggling readers, observed and expected, by learners assessed

Learners assessed	Schools	No struggling reader: observed	Expected, beta-binomial	Expected, binomial	Observed ÷ expected (beta-binomial)	Only struggling readers: observed	Expected, beta-binomial
1–9	741	544	489	427	1.1	6	1.8
10–29	5,432	2,522	2,141	949	1.2	12	0.4
30–99	18,691	4,181	3,706	256	1.1	9	1.0
100–299	10,338	1,104	989	0	1.1	1	0.3
300 or more	3,477	192	164	0	1.2	1	0.0
All schools	**38,679**	**8,543**	**7,490**	**1,632**	**1.14**	**29**	**4**

Note. Expected numbers sum each school's probability under its region's beta-binomial model (mean = the region's pooled share, κ by maximum likelihood) or under a binomial model with the region's share for every school. They carry no intervals. Learners counted once. Data: as in Table 1.

By region the ratio ran from 0.97 in Region XI, the only region with fewer zeros than expected, to 1.68 in NCR, and it was above 1.2 in 7 of the 18 regions (Figure 5). In NCR, 74 of the 520 schools (14.2%) reported none against 44 expected. Its schools are large, so the model expects few zeros there and a few more move the ratio far. BARMM (1.39) and Region VII (1.37) had the next highest ratios. A high ratio says that a region's records hold more zeros than its own spread of school results predicts; it is not a finding against the region or any school in it.

The opposite case, a school where every learner assessed was a struggling reader, was reported by 29 schools against about 4 expected, almost all of them in the three smaller size bands, where a few learners decide the result. Two further patterns can arise in recording. Among schools with 20 or more learners assessed, 275 (0.77%) reported every learner At Grade Level. Among schools assessed in both Grade 2 blocks with at least 10 learners in Grade 2 Mother Tongue, 14,765 (49.8%) reported identical counts at all five levels in the Mother Tongue and in Filipino. Of these schools, 64.9% list Tagalog as their mother tongue, the language on which Filipino is based, where identical results are unsurprising. Elsewhere, identical results are a reason to confirm that both assessments were given and entered separately.

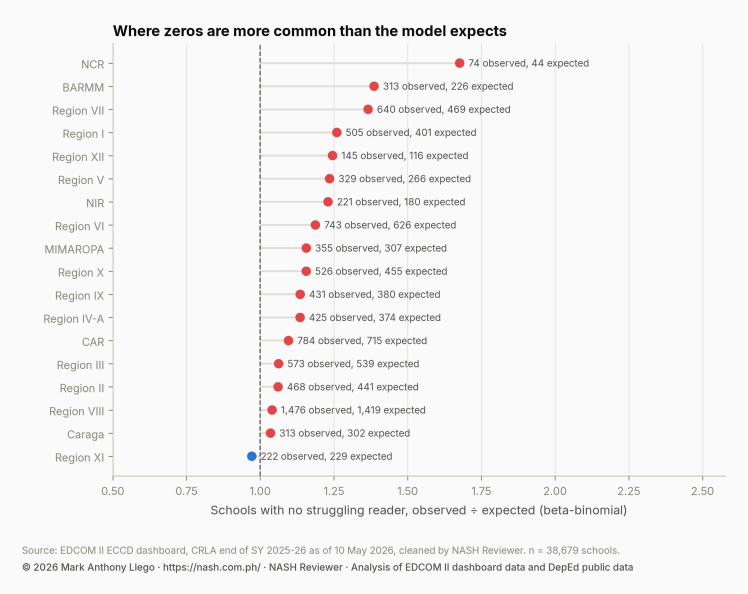

Figure 5. Schools reporting no struggling reader in each region, observed divided by the number expected under the region's beta-binomial model, with the observed and expected numbers; a dot to the right of the dashed line means more zeros than expected.

4. Discussion

Most of the difference in struggling readers between Philippine public schools at the end of SY 2025–2026 lay inside divisions. Two schools under the same division office typically differed in their odds of struggling by more than two divisions in a region or two regions did, and this held in every grade and language. A division's or a region's share therefore says little about any one of its schools, and support allocated by those averages alone would treat a division's high-share and low-share schools alike.

The upper levels still differ. A median odds ratio of 1.95 between divisions in the same region and of 1.68 between regions are large differences in their own right, and regional shares ran from 5.3% to 23.4% (Llego, 2026b). Divisions accounted for more of the variation than regions in every fit, though the data do not rank the two firmly. Within any division, the spread among schools is wider still.

Where struggling readers are depends on whether they are counted or rated. Half were in 9.0% of schools, and 33 of the 232 divisions held half, so a short list chosen by count holds a large part of them. A list built on shares fills with small schools, whose shares reach the top most easily. Count × rate kept most of the count rule's reach while choosing schools where more of the learners struggle. Small schools with high shares add little to national totals, so a rule built to reach the most learners passes them by, though the children in them need the same help. The 2026 ARAL Summer Programs select learners, not schools (DepEd, 2026, Enclosure, paras. 14 and 26); school and division counts show where those learners are, and so where the work of reaching them falls.

Most schools reporting no struggling reader are what a system of different, often small, schools would produce. The number exceeded the beta-binomial expectation by a ratio of 1.14, and the three-level model's simulations by more, so part of the excess may belong to the shape of the models rather than to the records. A ratio is not proof of error, and it points to no school. It does show where a records check is best spent: large schools reporting no struggling reader, regions with high ratios, schools reporting only struggling readers, and identical Grade 2 results outside Tagalog-language schools. A school head can confirm whether every learner was assessed and whether levels were entered in the right columns. A zero that holds up is a genuine result.

None of these differences is explained here. The school level holds learners' home languages, family circumstances and attendance, how the screen was given and recorded, and teaching; the split shows where differences sit, not what causes them.

5. Limitations

The results cover one school year and the learners whose results were on the dashboard on May 10, 2026, 93.8% of public Grade 1–3 enrollment; those not assessed may differ from those assessed. The model has three levels, so differences between districts or municipalities inside a division are counted in the school level, and part of what appears as variation between schools may lie between groups of nearby schools. The model includes no language, school size or other inputs, and adding them would move variation between levels. The shares are defined on the log-odds scale, and the learner-level variance of $\pi^2/3$ behind the shares of all variation is a convention, not a measurement. The model assumes normal effects and predicts fewer schools with no struggling reader than are reported. The Grade 2 Filipino fit kept 4,000 draws rather than 8,000, and passed the same convergence checks.

The targeting simulation compares rules on the year they were built from. Counts depend on the learners assessed, so a school that assessed only some of its learners shows a smaller count than its need, and the struggling count leaves out the 532,502 learners (10.4% of learners) at Developing (Llego, 2026b). The expected numbers of zeros carry no intervals and rest on the beta-binomial's smooth spread of school shares around each region's mean, with no term for divisions; if real shares bunch near zero more than that spread allows, part of the excess belongs to the model. The dashboard has no learner-level data, so no check here can tell a school with strong early reading from one with incomplete records. The CRLA is a teacher-administered screen, and its results depend on how consistently it is given and recorded. All results are associations.

Data availability

The cleaned school-level data, the school and division estimates, the unchanged extract of the dashboard's tables and documentation are free to download from NASH Reviewer at https://nash.com.ph/edcom-data, and are recorded at https://doi.org/10.5281/zenodo.24621192. Data citation: Llego, M. A. (2026a). *EDCOM II early-childhood dashboard data, cleaned* (Version 2) [Data set]. NASH Reviewer. https://doi.org/10.5281/zenodo.24621192. In research and teaching the files may be analyzed and the results published with a citation; republishing the files needs written permission. The original results are on the EDCOM II early childhood dashboard (EDCOM II, 2026).

Funding and competing interests

This work received no funding. The author runs NASH Reviewer, a review service for the National Assessment for School Heads, and has no affiliation with DepEd or EDCOM II.

References

Abril-Pla, O., Andreani, V., Carroll, C., Dong, L., Fonnesbeck, C. J., Kochurov, M., Kumar, R., Lao, J., Luhmann, C. C., Martin, O. A., Osthege, M., Vieira, R., Wiecki, T., & Zinkov, R. (2023). PyMC: A modern, and comprehensive probabilistic programming framework in Python. *PeerJ Computer Science, 9*, Article e1516. https://doi.org/10.7717/peerj-cs.1516

Benjamini, Y., & Hochberg, Y. (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society: Series B (Methodological), 57*(1), 289–300. https://doi.org/10.1111/j.2517-6161.1995.tb02031.x

Casella, G. (1985). An introduction to empirical Bayes data analysis. *The American Statistician, 39*(2), 83–87. https://doi.org/10.1080/00031305.1985.10479400

Department of Education. (2025a). *Implementing guidelines for the Academic Recovery and Accessible Learning Program in Reading for Key Stages 1 to 3* (DepEd Memorandum No. 064, s. 2025). https://www.deped.gov.ph/2025/08/01/august-1-2025-dm-064-s-2025-implementing-guidelines-for-the-academic-recovery-and-accessible-learning-program-in-reading-for-key-stages-1-to-3/

Department of Education. (2025b). *Supplemental guidelines on the implementation of the Literacy Remediation Program* (DepEd Memorandum No. 034, s. 2025). https://www.deped.gov.ph/2025/04/12/april-12-2025-dm-034-s-2025-supplemental-guidelines-on-the-implementation-of-the-literacy-remediation-program/

Department of Education. (2026). *Guidelines for the implementation of the 2026 summer remediation programs* (DepEd Order No. 010, s. 2026). https://www.deped.gov.ph/2026/04/29/april-28-2026-do-010-s-2026-guidelines-for-the-implementation-of-2026-summer-remediation-programs/

Gelman, A., Carlin, J. B., Stern, H. S., Dunson, D. B., Vehtari, A., & Rubin, D. B. (2013). *Bayesian data analysis* (3rd ed.). CRC Press. https://doi.org/10.1201/b16018

Gini, C. (1912). *Variabilità e mutabilità* [Variability and mutability]. Tipografia di Paolo Cuppini.

Goldstein, H., Browne, W., & Rasbash, J. (2002). Partitioning variation in multilevel models. *Understanding Statistics, 1*(4), 223–231. https://doi.org/10.1207/S15328031US0104_02

Hoffman, M. D., & Gelman, A. (2014). The No-U-Turn Sampler: Adaptively setting path lengths in Hamiltonian Monte Carlo. *Journal of Machine Learning Research, 15*(47), 1593–1623. https://jmlr.org/papers/v15/hoffman14a.html

Larsen, K., & Merlo, J. (2005). Appropriate assessment of neighborhood effects on individual health: Integrating random and fixed effects in multilevel logistic regression. *American Journal of Epidemiology, 161*(1), 81–88. https://doi.org/10.1093/aje/kwi017

Larsen, K., Petersen, J. H., Budtz-Jørgensen, E., & Endahl, L. (2000). Interpreting parameters in the logistic regression model with random effects. *Biometrics, 56*(3), 909–914. https://doi.org/10.1111/j.0006-341X.2000.00909.x

Llego, M. A. (2026a). *EDCOM II early-childhood dashboard data, cleaned* (Version 2) [Data set]. NASH Reviewer. https://doi.org/10.5281/zenodo.24621192

Llego, M. A. (2026b). *Struggling readers at the end of School Year 2025–2026: CRLA results for 5.1 million Grade 1–3 learners in Philippine public schools* (NASH Reviewer Research Report No. 1). NASH Reviewer. https://doi.org/10.5281/zenodo.24621196

Lorenz, M. O. (1905). Methods of measuring the concentration of wealth. *Publications of the American Statistical Association, 9*(70), 209–219. https://doi.org/10.1080/15225437.1905.10503443

Merlo, J., Chaix, B., Ohlsson, H., Beckman, A., Johnell, K., Hjerpe, P., Råstam, L., & Larsen, K. (2006). A brief conceptual tutorial of multilevel analysis in social epidemiology: Using measures of clustering in multilevel logistic regression to investigate contextual phenomena. *Journal of Epidemiology and Community Health, 60*(4), 290–297. https://doi.org/10.1136/jech.2004.029454

Second Congressional Commission on Education. (2026). *EDCOM 2 early childhood dashboard* [Data dashboard]. Retrieved October 27, 2026, from https://edcom2.gov.ph/eccddashboard/

Skellam, J. G. (1948). A probability distribution derived from the binomial distribution by regarding the probability of success as variable between the sets of trials. *Journal of the Royal Statistical Society: Series B (Methodological), 10*(2), 257–261. https://doi.org/10.1111/j.2517-6161.1948.tb00014.x

Snijders, T. A. B., & Bosker, R. J. (2012). *Multilevel analysis: An introduction to basic and advanced multilevel modeling* (2nd ed.). Sage.

Spiegelhalter, D. J. (2005). Funnel plots for comparing institutional performance. *Statistics in Medicine, 24*(8), 1185–1202. https://doi.org/10.1002/sim.1970

Vehtari, A., Gelman, A., Simpson, D., Carpenter, B., & Bürkner, P.-C. (2021). Rank-normalization, folding, and localization: An improved $\hat{R}$ for assessing convergence of MCMC (with discussion). *Bayesian Analysis, 16*(2), 667–718. https://doi.org/10.1214/20-BA1221

Wagstaff, A., Paci, P., & van Doorslaer, E. (1991). On the measurement of inequalities in health. *Social Science & Medicine, 33*(5), 545–557. https://doi.org/10.1016/0277-9536(91)90212-U