Growth in Reading From the Beginning to the End of the School Year: A Growth Curve Study of Grade 2 Learners

A basic research proposal · Basic Education Research Fund 2025

[Researcher 1], Senior Education Program Specialist (Planning and Research)
[Researcher 2], Education Program Supervisor · [Researcher 3], Teacher III (Reading Coordinator)
[Schools Division Office], Department of Education

A sample with invented data, for teaching: nash.com.ph/blog

Introduction and rationale: how fast do Grade 2 readers grow?

39.4

words correct per minute in Filipino at the end of Grade 2, in two regions, 2016

Education Development Center (2016), p. A22

40

words correct per minute: the Grade 2 Filipino benchmark set with DepEd; about half met it

Education Development Center (2016), p. 24

Filipino

the medium of instruction from Kindergarten to Grade 3 again, with English, under the 2024 law

Republic Act No. 12027 (2024), Sec. 1



These are snapshots at the end of a grade, of different children. Our division does not know how fast its Grade 2 learners grow within a year, how much they differ, or whose growth lags.

Literature review: how reading grows

Stanovich (1986)

Described rich-get-richer and poor-get-poorer patterns of reading achievement: early gaps that widen.

Pfost et al. (2014)

25 years of studies: no strong support for widening or narrowing gaps; a small negative correlation of start and growth, r = −0.214.

Christ et al. (2010)

Three benchmarks a year: more growth in the fall than the spring, especially in the early grades.

So: expect wide differences in growth, faster in the first half of the year.

Literature review: measuring and modeling growth

Singer & Willett (2003)

Three or more waves; with three, assume straight-line growth; clock time by the actual test date, not the wave number.

Christ & Silberglitt (2007)

A one-minute reading's standard error is most likely 5 to 9 words correct per minute: one learner's line is noisy.

Silberglitt & Hintze (2007)

Growth rates of 7,544 learners by multilevel model: much lower growth at the bottom and the top of the start.

So: a growth model with random intercepts and slopes, on each learner's own test dates.

Four questions, four null hypotheses

1. How did Grade 2 learners' Filipino reading fluency change over the year, and how much did they differ in start and growth?
2. Was growth even, or faster before the middle of the year than after it?
3. How are sex, 4Ps, home language, Kindergarten and age for grade related to the start and to growth?
4. How many reach 40 words correct per minute by the end of the year, and how do CRLA profiles change?

Null hypotheses (α = .05)

- $H_0$1: Learners do not differ in growth.
- $H_0$2: Growth is the same before and after the middle reading.
- $H_0$3: The five traits are not related to the start.
- $H_0$4: The five traits are not related to growth.

What the study covers, and what it cannot show

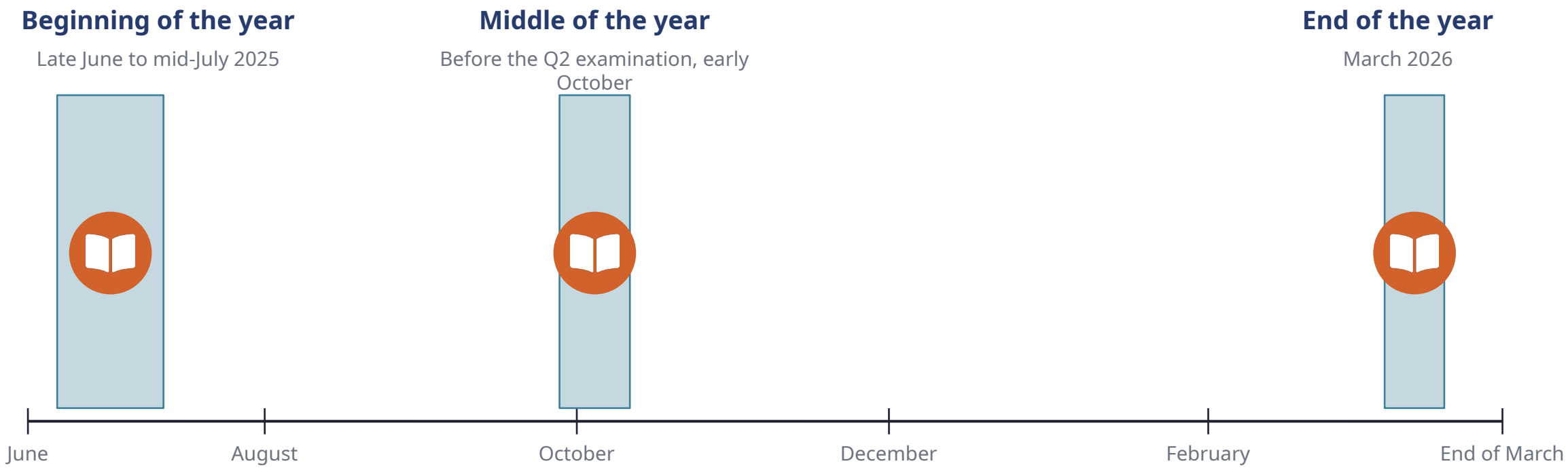
Scope

- All Grade 2 learners of the division's 20 public elementary schools, SY 2025–2026
- About 1,100 learners, with parents' consent: no sampling
- Three one-minute readings in Filipino, and school records
- Three readings: late June to mid-July 2025, early October 2025, March 2026

Limitations

- Observational: traits that go with slow growth are not causes
- Low starters join ARAL-Reading: tutoring and start mix
- Non-readers sit at zero, a floor
- Three passages, not equated; three points allow only straight lines

Research design: the same learners, three readings



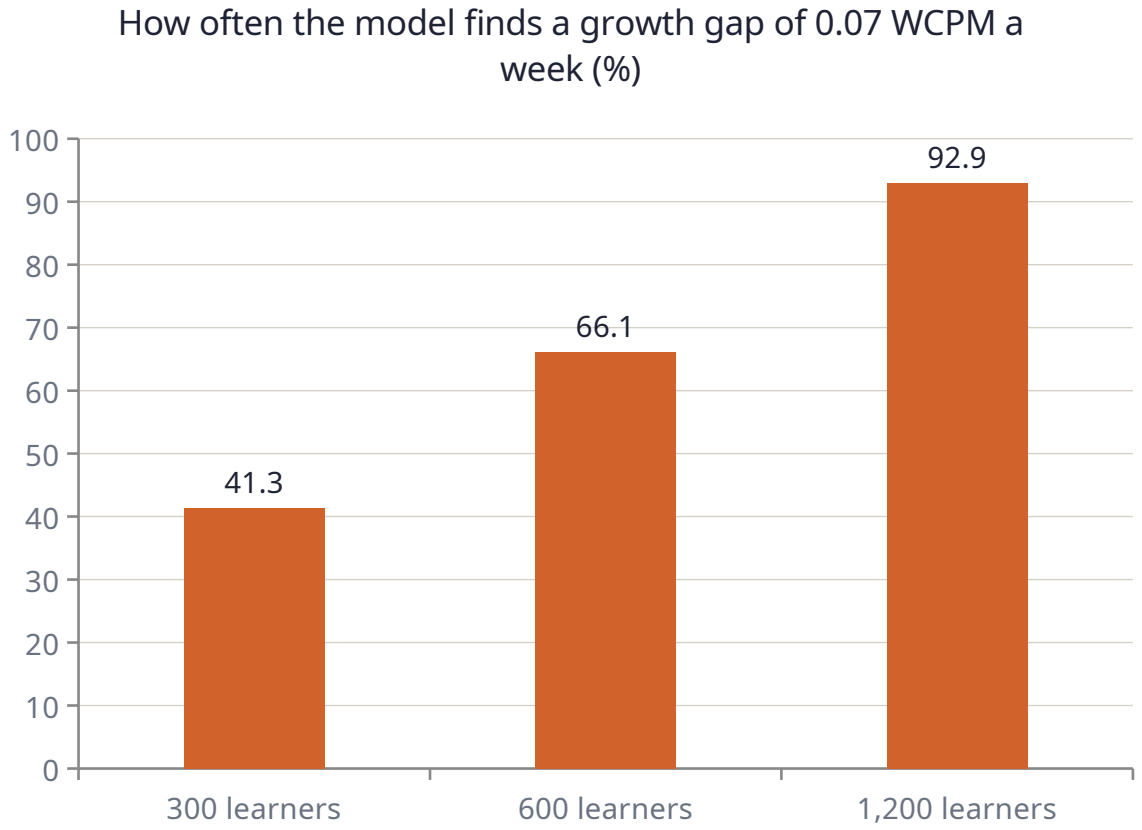
A longitudinal design: the same learners read three times in one school year; time is each learner's own test date.

Sampling: every learner; is it enough?

20 public elementary schools in the division, all of them

≈ 1,100 Grade 2 learners expected: all whose parents consent

3 readings each: about 3,300 in all



200 simulated studies for each number of learners, from the planning values; growth model with random intercepts and slopes, α = .05.

Data collection: three readings and the school's records

Oral reading passages

Three Grade 2-level Filipino passages from different sets of the Phil-IRI graded passages, one for each reading. One minute aloud; words correct per minute; each reading recorded.

School records

Sex, date of birth, 4Ps membership, home language, Kindergarten, the CRLA profile at the beginning and the end of the year, and ARAL-Reading participation. Codes in place of names.

Derived variables

Weeks from the first day of classes to each test date; overage (two or more years over the official age for Grade 2).

Data collection: validity, reliability, schedule

A record check

A second assessor scores a random 10% of the recordings without seeing the first score: agreement and the ICC.

Trained assessors

Two assessors trained on the same error rules (omissions, substitutions, words supplied after three seconds); self-corrections count as correct.

Test dates kept

Each reading's date is recorded, so time in the model is each learner's own, not the window's number.

Checks of the model

School fixed effects; schools as a third level; the model without learners who read nothing at the start.

Grant approval April 2025 · Memorandum of agreement and consent letters May to June 2025 · Readings late June to mid-July 2025, early October 2025, and March 2026 · Records and record check March to April 2026 · Analysis April to May 2026 · Report May 2026.

Ethical issues: consent, privacy, and review

Consent and assent

Parents' written consent and each learner's assent, asked in Filipino; a learner may stop at any time (DM 028, s. 2022).

Privacy

Codes only; the key stays in each school; recordings deleted after the record check (RA 10173).

No grading

No reading is used to grade a learner or to decide anything about one; results name no learner or school.

Approval

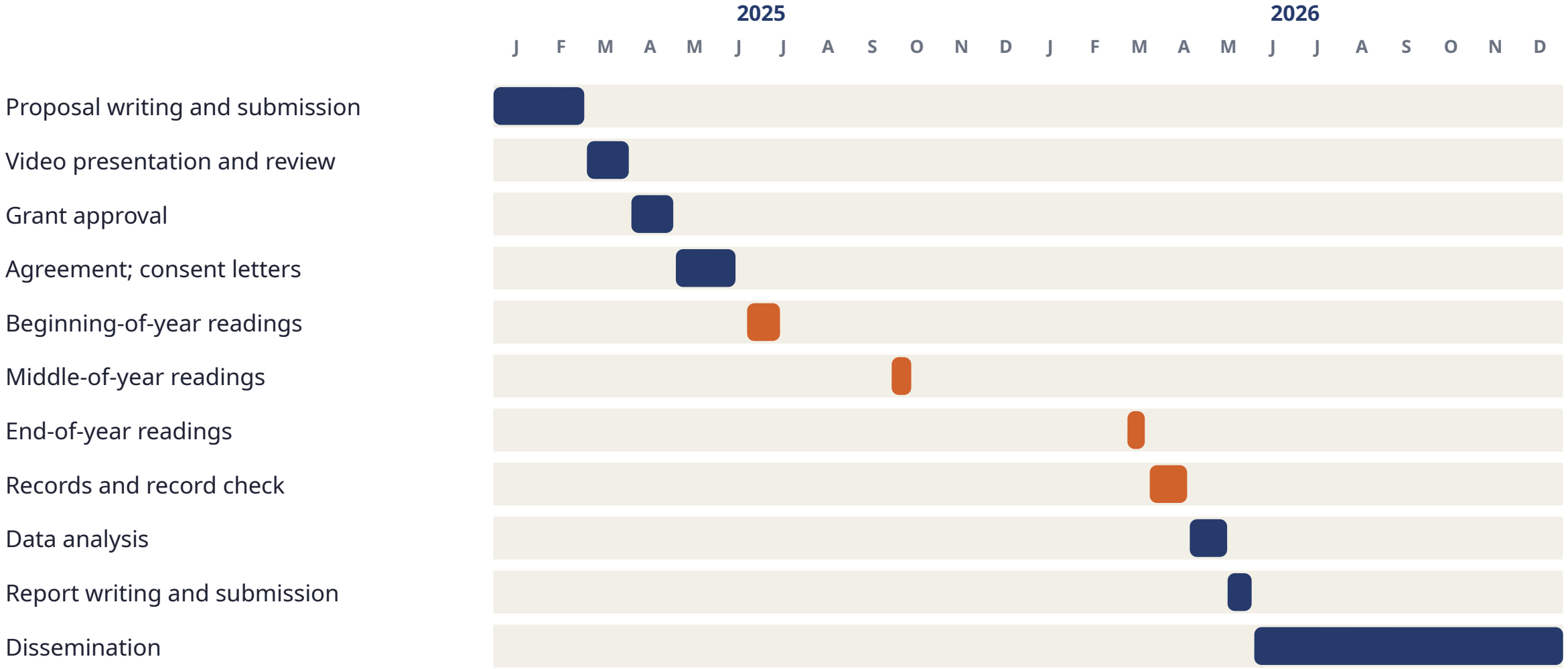
The Regional Research Committee's approval of the grant and the Schools Division Superintendent's permission to work in the schools.

Plan for data analysis: growth curves

Question 1	Means at each reading; growth models with random intercepts and slopes; a likelihood-ratio test of differences in growth.
Question 2	A bend at the middle reading, tested by likelihood ratio; time as test dates, not wave numbers.
Question 3	The five traits on the start and on growth; REML estimates, ML comparisons; three checks.
Question 4	The share at 40 words correct per minute or more at the end; CRLA profiles at the beginning and the end.

Python with statsmodels MixedLM; Excel recomputes the means, each learner's own line, the intervals and every statistic it can.

Timetable: January 2025 to December 2026



Orange: work in the schools. Months run from January 2025 to December 2026.

Cost estimates: PhP 15,000 in eligible items

Item	Particulars	Amount (PhP)
Reproduction	Passages, score sheets and consent letters (about 2,600 pages)	2,600.00
Transportation	60 trips to the 20 schools, three windows	4,500.00
Food	Snacks for the reading days	2,400.00
Communication	Mobile data, three researchers	3,000.00
Supplies	Stopwatches, folders, an encrypted flash drive	1,100.00
Dissemination	Policy brief	1,400.00
Total		**15,000.00**

Not charged to the grant

- Statistical software: Python and its libraries are free
- Honoraria for the assessors' record check
- Equipment, utilities and office rent

Dissemination and advocacy: who needs the findings

School heads and reading coordinators

Division school heads' conference and a two-page policy brief: track each learner's growth at the CRLA windows.

June 2026

Grade 1 to 3 teachers

Learning action cell sessions: time a one-minute reading and read the gain.

July to August 2026

Division curriculum and ARAL focal persons

Division management committee: whose growth lags, and when.

June 2026

Researchers

Regional research congress and the division's research journal.

By December 2026

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Thank you

[Researcher 1] · [DepEd email address] · [mobile number]
[Researcher 2] · [DepEd email address]
[Researcher 3] · [DepEd email address]
[Schools Division Office], [address]