READING RESCUE POST PANDEMIC INTERVENTION
LITERACY ALIVE BELIZE
Rotary International Global Grant #2348633

YEAR ONE REPORT OF RESULTS (2023-2024)

IMPLEMENTATION IN GOVERNMENT SCHOOLS STANDARD 2 AND 3
JUNE 6, 2024

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OVERVIEW

In August 2023, following direction from the MoECST (Ministry of Education, Culture, Science and Technology), a Reading Interventions program was implemented in the Standard 2 and 3 classrooms in all government schools across the country. The program, supported by a Rotary International Global Grant and initiated by the Rotary Clubs of Red Deer, Canada and San Ignacio Belize, was an ambitious undertaking to provide reading instruction support to Belize teachers to address significant concerns of reading losses as one unfortunate outcome of the COVID pandemic.

In the summer of 2023, a professional development (PD) program provided support for hundreds of teachers and administrators to learn about the program. This PD prepared teachers to implement said program, determine a plan for utilization of existing resources, develop a system of student assessment and strengthen school and community understanding of the strategies to efficiently teach reading.

The MoECST identified four lead educators to monitor and support implementation. Ms. Melissa Andrade, Government School Manager, was identified as the lead contact and worked with the team of Marion Nolberto, Lianne Awe, and Miriam Codd. During 2023 – 2024 this group was in ongoing contact with the Canadian teacher leaders under the leadership of Dr. Lynne Paradis, Project Lead. This group is referred to as the BRITE (Belize Reading Intervention Team Experts).

This report follows the ***Implementation Review Report*** prepared in Feb. 2023, where details of implementation are documented.

PROGRESS FEB 2024 TO MAY 2024

Observations from program monitoring in October 2023 resulted in project team discussions identifying the need to conduct a mid point student assessment with a cohort of schools, thus collecting data to inform the success of early implementation. Schools were selected, and during January 2024 approximately 300 students were assessed. These results were promising and indicated that increased emphasis was needed to teach lessons daily and to systematically move through the program. Further, teachers and administrators were encouraged to focus on keeping the lesson strategies simple, according to the learning resource documents. These results are included in the appendix of this report for reference.

Following the analysis of the mid point cohort testing, the BRITE group adjusted project implementation workplans for the balance of the school term. Support and intervention activities were identified for schools that were not effectively implementing the program. Additional work was done with exploring effective use of existing government supplied resources in the schools to augment the reading intervention instruction. A plan for increasing the access to, and reading support provided by, branch and community libraries was shared. Finally, strategies were encouraged to have teachers align the reading intervention instruction with the newly implemented English Language Arts competency curriculum.

Instruction continued in government school classrooms and the BRITE team, with other government support personnel, increased monitoring and supervision of program implementation.

As schools finished the 64 lessons (full program), final student assessments were conducted between March and early May 2024.

All data was collected by May 17, 2024 and the Canadian team conducted the analysis, developing data/evidence supported conclusions on the first year of project implementation. With the input of the BRITE team, recommendations and commendations were also developed. These follow in this report.

PARTICIPATION AND COMPLETION

All Standard 2 and 3 teachers were expected to carry out the program, beginning with conducting pretest assessment, followed with implementing the instructional program, and then completing the final assessment. There was significant variance across the districts in this regard.

The following tables, based on data provided by the Ministry and individual schools, demonstrates a snapshot of participation and completion.

1) Student participation

Regions	Gov't school enrollment	Total students pretest	% enrolled students pretest	Total students pre and post tests	% enrolled students pre and post tests
North Std II	388	344	89%	198	**58%**
North Std III	421	398	95%	250	**63%**
Central Std II	522	422[1]	81%	198	**47%**
Central Std III	524	523	99.8%	351[2]	**67%**
South Std II	369	387[3]	100.05%	289	**75%**
South Std III	447	444	99%	358	**80%**
TOTALs	**2671**	**2518**	**94%**	**1647**	**65%**

2) School and teacher participation

Regions	Government school involvement (58 total)	Teacher #s involved	Notes
North Std II	18/18	25	
North Std III	18/18	23	
Central Std II	16/22	20	1 school done in south region; 2 schools did not participate; 3 schools Std III only
Central Std III	19/22	23	
South Std II	18/18	23	1 central region school done in south; 2 schools Std II only; 1 school didn't participate.
South Std III	16/18	23	
TOTALS	**52 Std II, 53 Std III**	**137**	

3) Lesson completion

Regions	Started at lesson #1	Finished at lesson 64	Notes
North Std II	Lesson 1[4]	100%	District used backward model with teachers to ensure completion of all 64 lessons
North Std III	Lesson 1[5]	100%	
Central Std II	Lesson 1[6]	75%	25% completed up to lesson # 46 to 57
Central Std III	Lesson 1[7]	72%	28% completed up to lesson # 54 to 56
South Std II	Lesson 25 up to 37[8]	72%	28% completed up to lesson # 49 to 56
South Std III		75%	25% completed up to lesson # 49 to 61

[1] Gales Point, a central region school, was removed and added to south region testing; 2 additional central schools did not do pretesting.

[2] Significant number of pretests in central region only did LeNS not CC3 thus not included in analysis

[3] Gales Point, a central region school, was included in south region testing

[4] Only school to not start 10 students on lesson 1 is Paraiso for Std II

[5] Only school to not start 30 students on lesson 1 is Louisiana for Std III

[6] Only schools not to start 19 students on lesson 1 are Garden City, La Gracia, Los Tambos and United

[7] Only schools to not start 57 students on lesson 1 are Hidden Paradise and Lucky Strike

[8] Majority students across schools started at between lesson 25 and 37

CONCLUSIONS ON PARTICIPATION AND COMPLETION

An average of **65% of students** completed pre and post tests which also provided consistent, reliable data able to be analyzed. **53 of the 58 government schools** participated in the program; however, a large number of school classes provided inconsistent data for some of their students.

The South region had very high reliable data completion rates, ranging from **75% to 85%** of students participating. The North and Central regions had lower completion rates, which ranged from **47% to 67%**. Combined, the national reliable data completion rate was **65%** of students, a number boosted by the higher rates found in the South.

The number of students assessed at the beginning of the program was high – **94%** of Standard 2 and 3 students did the pretest - but at the end of the program the recorded data was found to be incomplete or incorrect. This resulted in **30%** of the pretest students being removed from the final analysis.

All data demonstrates significant implementation of the program across most government schools. However, the students not included in the analysis appeared to have full participation in the program. Thus, individual schools could go to the base data and determine the student which had incomplete or incorrect data.

Why the range of participation and completion rates?

Many factors could have contributed to the range of reliable data completion rates:

- Incomplete pretest or post test data per student
- Teachers not completing testing for students who didn't fully participate in the instruction
- Errors in recording testing data (incomplete or inaccurate recording)
- Transfer of students to another school before the final testing

Overall, some data was incorrectly recorded so complete data was not available for a significant number of students. This indicates some prevailing issues with teachers' understanding of the assessment and recording protocols.

STUDENT PROGRESS CONCLUSIONS

All students in the data analysis showed **significant improvement** from pre to post testing. Many students improved by at ***least 50%.***

The **reading intervention strategies *improved reading skills* for students in the program**.

The more lessons that were completed resulted in higher learning than incidences where a teacher did not teach all 64 lessons.

The mid point and final test data demonstrates that students ***successfully apply decoding skills***, as seen the non-word score results.

There were not significant differences in the achievement of standard two or standard three students. Both groups showed similar progress.

FURTHER CONSIDERATION

The discrepancies in the results between the south and the other 2 regions could be the result of which lesson number instruction began. The majority of north and central students began at lesson 1, regardless of how they scored on the pretest; in the south, students began at the lesson that correlated with their pretest scores. As a result, the majority of the students in the south began between lesson 25 and 37. This starting point difference likely led to the variation in end results. The north and central regions' participating students actually received an 'added review' of all lessons, regardless of their pretest scores, whereas the south had less lesson exposure, having started the majority of students partway through the program based on their pretests.

RECOMMENDATIONS

Based on the data analysis of the full school year program, there are a number of recommendations for consideration:

- The program would be beneficial for all Standard 1 students, with an understanding that all students participate in pre and post test and teachers complete all 64 lessons.
- While data reflects significant growth, there are still room for further improvement. Students are not scoring high per se but rather scoring considerably better than when they started. Classroom teachers should pay attention to individual student growth and adjust accordingly.

- All teachers in a school would benefit from being trained in assessment and teaching strategies for reading.
- All teachers need to be trained on the program and do pretesting on children experiencing reading difficulty to determine intervention for small groups.
- Individual teacher ownership of the reading intervention strategies is encouraged as part of daily Belize reading instruction (and not seen as owned by the Canadians).
- Encourage widespread use of reading intervention in all grades as needed.
- Encourage teacher reading leaders in each school to support all teachers in reading instruction.
- Schools would benefit from development of a reading improvement plan where reading is embedded in all curricular areas and reading is reviewed as an important component of all subjects.
- Public libraries could be more readily accessed and recognized for the value that they offer to supporting reading outside of school hours.
- There is a need to strengthen reading advocacy with the general public to reinforce the value of daily reading.
- Schools would benefit with a school wide plan to identify struggling readers and to develop targeted reading interventions into classes.
- When implementing reading intervention in a class, strive to have 4 lessons per week; ensure no less than 3 per week.
- Teachers are encouraged to improve reading instruction with doing an ongoing review of sounds, letters and blending, and developing a growing repertoire of irregular words.
- Each school could benefit have an identified literacy lead that can assist other teachers with the reading intervention strategies and assessments.
- Ideally, professional development sessions should be done in small groups with lots of teacher engagement practicing the instructional strategies.
- There is a need to include ongoing PD on reading instruction and assessment to address literacy challenges in primary schools.
- Consider contracting a short term consultant to assist in aggregating the data.
- A control group would be valuable to include in the assessment of the reading intervention program. The control group - a class at the same level as another class participating in the program - is given a pretest in September/October, but does NOT participate in the program, and then is given a post test in April/May. Comparing the control group against the reading intervention participation group would provide comparative data of the difference in the rate of growth achieved over the course of the year by both sets of students.

COMMENDATIONS

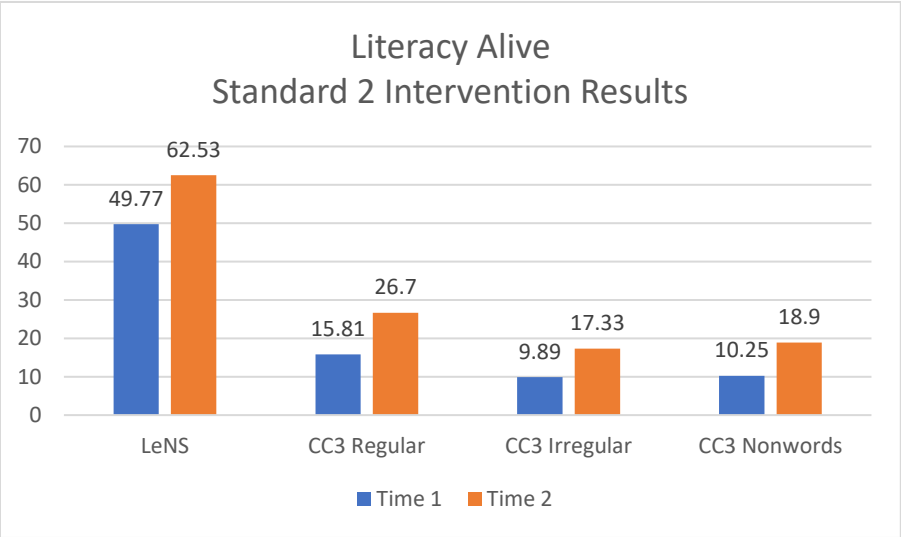
- The program success has been significantly influenced by the BRITE team. On the ground support by Belizean leaders has ensured constant check-ins with schools and troubleshooting when challenges arose. The three leads – Miriam Codd, Lianne Awe and Marion Nolberto – did excellent work in their roles.
- Implementation of mid point testing had positive effects; this resulted in course correction and the reading intervention workplan was revised accordingly.
- While testing required additional school time and resources, deadlines were honoured in the majority of the schools. This needs to be recognized and applauded.
- In schools where principals were actively engaged in supporting the program, results were more positive than in schools where there was less support.
- There is evidence of increased teacher confidence in teaching reading as one outcome of the project.
- Many teacher leaders of reading emerged through the process; this served to motivate other teachers in the school to embrace the teaching strategies.
- It should be noted that the successes in the south were likely impacted by the fact that most teachers had used the program as part of the pilot program the year before. This would indicate that the more practice teachers have with the program, the more impact it has on student learning.
- BNLSIS public libraries have taken reading intervention support very seriously through the course of the past year. Not only have all library staff learned how to support the intervention, a large number of libraries across the country implemented summer reading intervention support programs in 2023. A commitment has been made by BNLSIS leadership to have all branch and community libraries incorporate reading intervention support into their summer programs for 2024.
- The AMANDALA newspaper has followed the project and provided national coverage on the merits or reading focus in schools and community and provided supportive media coverage on the reading intervention results.
- The local communities and Rotary Clubs of Red Deer and San Ignacio have been very supportive.

NATIONAL DATA

National Performance

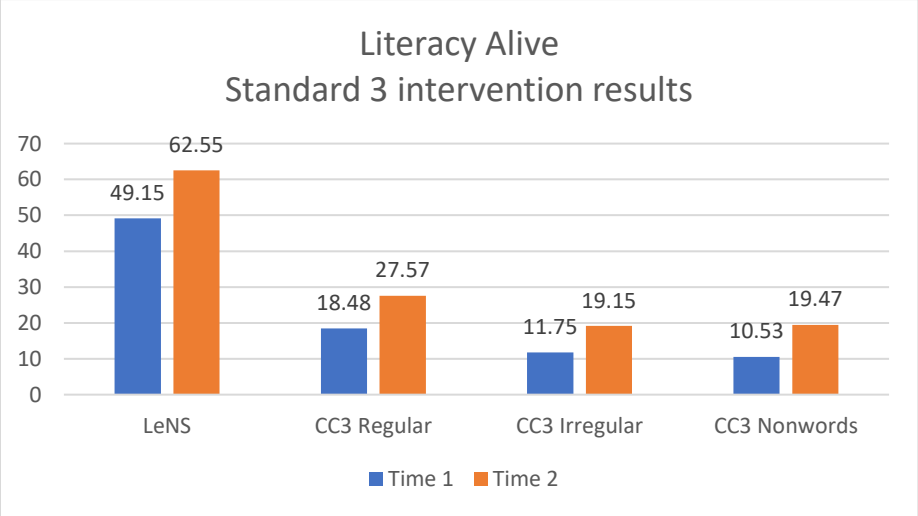
Comparison of Growth between Pretest and Final Test

Standard 2



LeNS: 25%
CC3 Regular: 70%
CC3 Irregular: 75%
CC3 Nonwords: 85%

Standard 3



LeNS: 25%
CC3 Regular: 50%
CC3 Irregular: 65%
CC3 Nonwords: 85%

General observations:

-The effects of the intervention are large for each type of word.

-Both grade levels improved similarly.

*All pre-test post-test comparisons are significant.

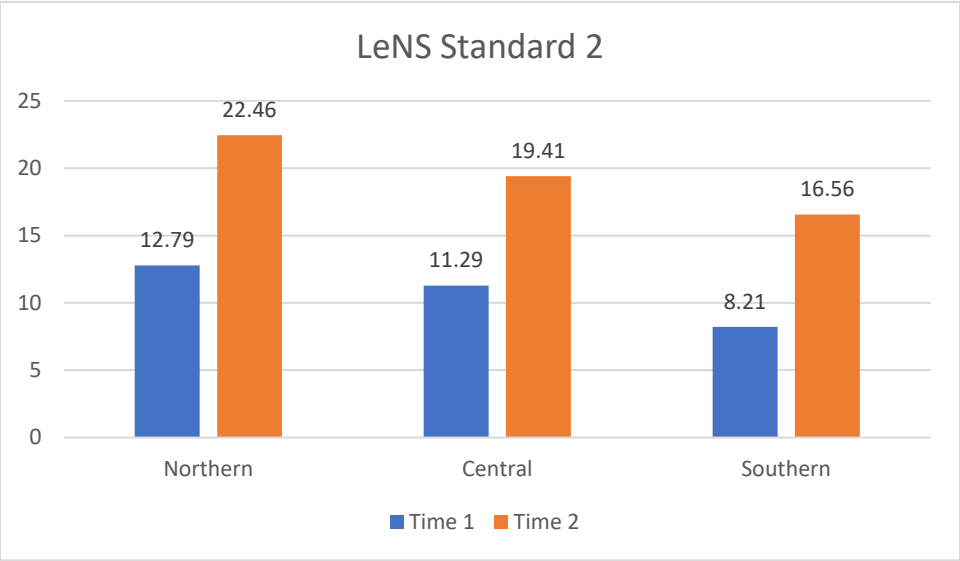
Percentages indicate the percentage of growth between October and May.
Post-test score minus pre-test score divided by pre-test score = % growth

REGIONAL DATA

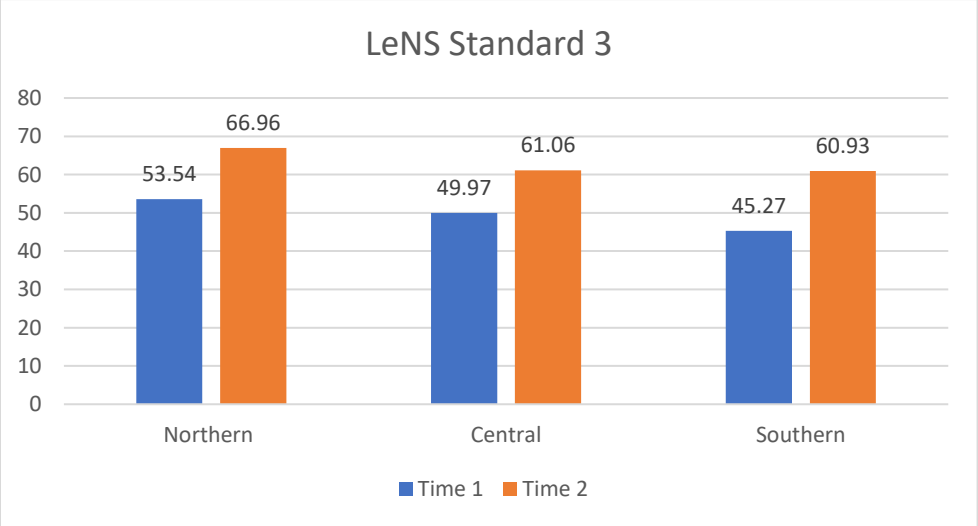
Regional Performance

Comparison of Growth between Pretest and Final Test

LeNS



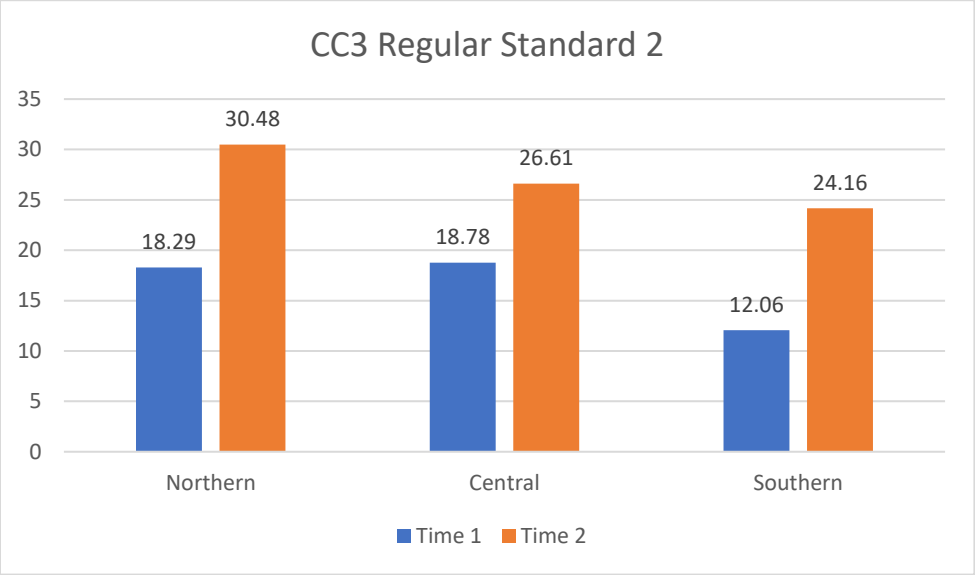
North: 75%
Central: 72%
South: 100%



North: 25%
Central: 20%
South: 35%

*All pre-test post-test comparisons are significant.
Percentages indicate the percentage of growth between October and May.
Post-test score minus pre-test score divided by pre-test score = % growth

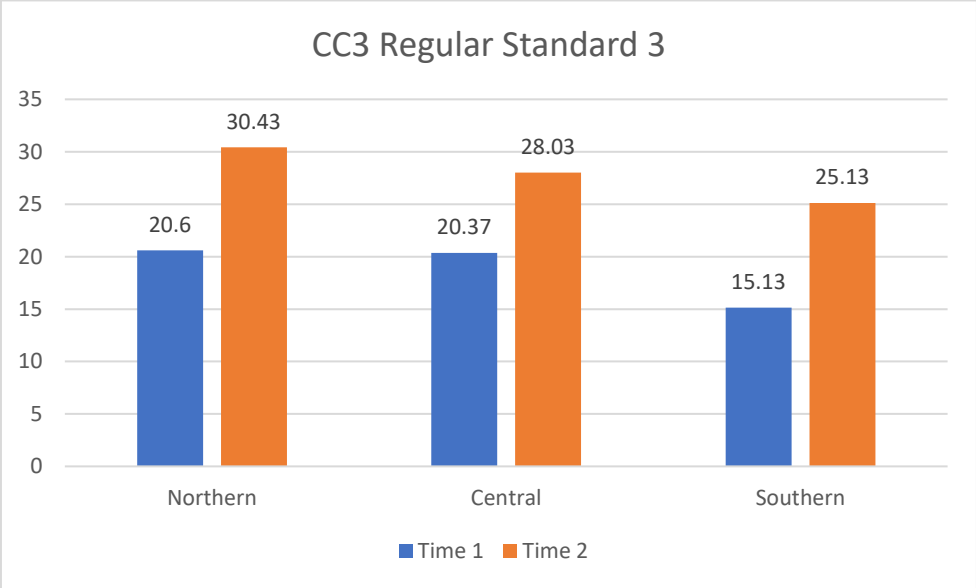
CC3 Regular



North: 65%

Central: 40%

South: 100%

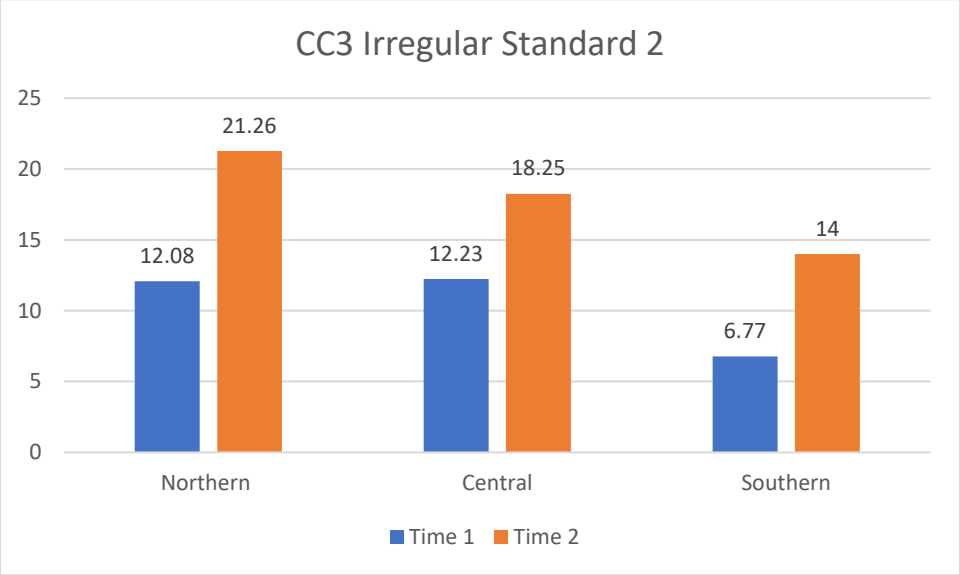


North: 50%

Central: 40%

South: 65%

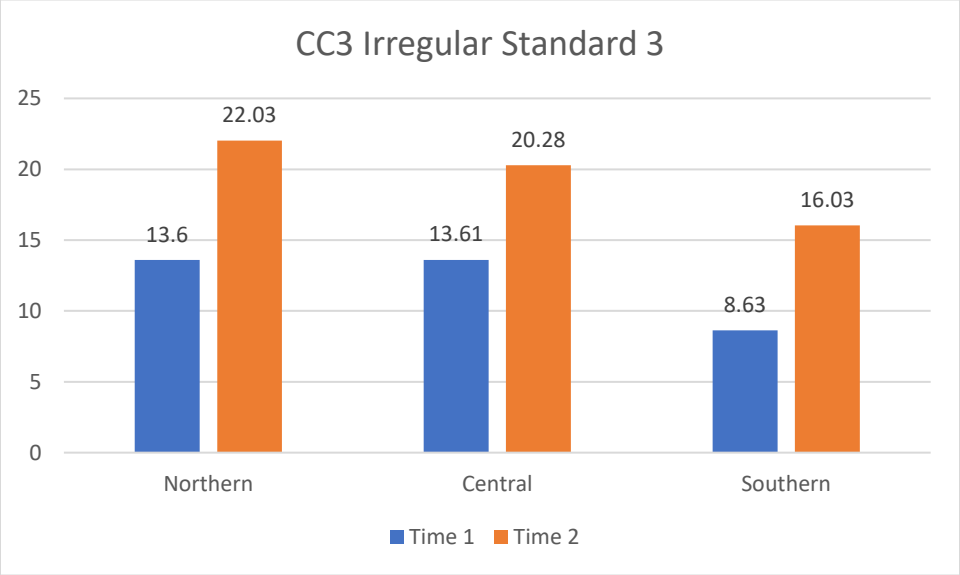
CC3 Irregular



North: 75%

Central: 50%

South: 105%

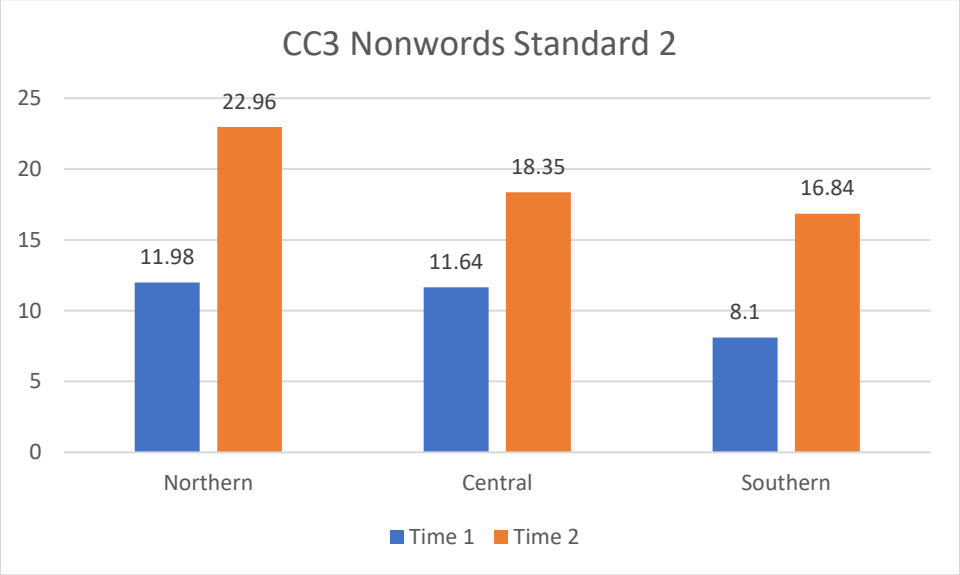


North: 60%

Central: 50%

South: 85%

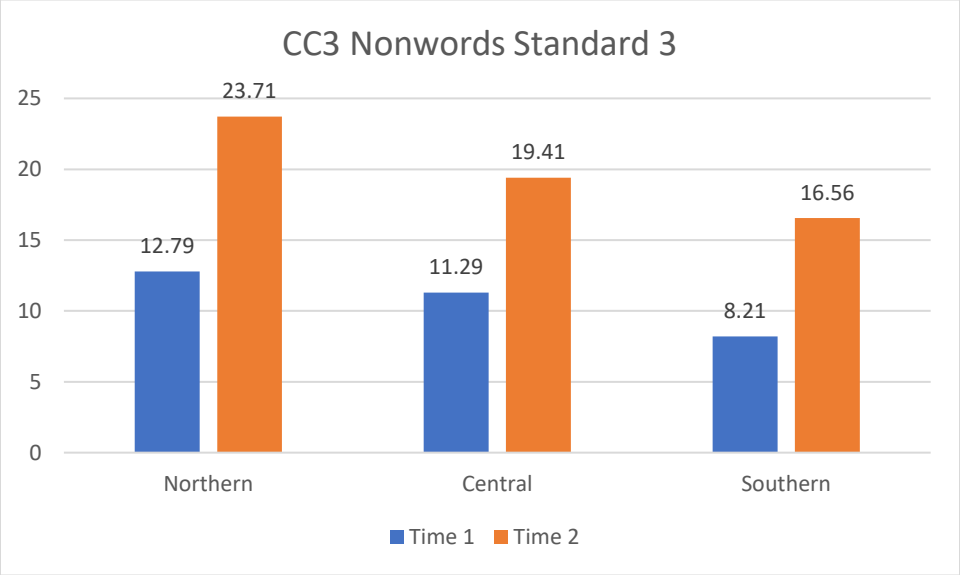
CC3 Nonwords



North: 90%

Central: 60%

South: 110%



North: 85%

Central: 70%

South: 102%

APPENDICES

Statistical Data to Inform Analysis Done with Statistical Package for Social Sciences (SPSS)

NORTHERN REGION

LeNS

Descriptive Statistics

	Group	Mean	Std. Deviation	N
LeNS_pre	2.00	51.1515	14.51263	198
	3.00	53.5400	14.08695	250
	Total	52.4844	14.30992	448
LeNS_post	2.00	65.7071	9.63049	198
	3.00	66.9600	10.16878	250
	Total	66.4063	9.94302	448

There was a significant effect of Time. Children improved over time significantly ($F(1,446) = 599.30$; $p < .001$). There was no significant time by grade interaction. Both grades made similar gains over time.

CC3 Regular

Descriptive Statistics

	Group	Mean	Std. Deviation	N
CC3reg_pre	2.00	18.2980	14.02598	198
	3.00	20.6080	12.89182	250
	Total	19.5871	13.43878	448
CC3reg_post	2.00	30.4848	10.10942	198
	3.00	30.4360	10.85492	250
	Total	30.4576	10.52037	448

There was a significant effect of Time. Children improved over time significantly ($F(1,446) = 531.59$; $p < .001$). There was also a significant time by grade interaction. Standard two made greater gains than standard 3.

CENTRAL

LeNS

Descriptive Statistics

	VAR00001	Mean	Std. Deviation	N
LeNS_pre	2.00	53.0556	15.25326	198
	3.00	49.9743	13.97078	350
	Total	51.0876	14.50927	548
LeNS_post	2.00	63.7576	12.17895	198
	3.00	61.0629	13.00745	350
	Total	62.0365	12.76903	548

There was a significant effect of Time. Children improved over time significantly ($F(1,546) = 636.51$; $p < .001$). There was no significant time by grade interaction. Both grades made similar gains over time.

CC3 Regular

Descriptive Statistics

	VAR00001	Mean	Std. Deviation	N
CC3reg_pre	2.00	18.7879	13.26135	198
	3.00	20.3714	13.02496	350
	Total	19.7993	13.12086	548
CC3reg_post	2.00	26.6162	12.84836	198
	3.00	28.0343	12.27754	350
	Total	27.5219	12.49371	548

There was a significant effect of Time. Children improved over time significantly ($F(1,546) = 405.87$; $p < .001$). There was no significant time by grade interaction. Both grades made similar gains over time.

SOUTHERN REGION DATA

LeNS

Descriptive Statistics

	VAR00001	Mean	Std. Deviation	N
LeNS_pre	2.00	46.5729	16.26206	288
	3.00	45.2745	16.51056	357
	Total	45.8543	16.40010	645
LeNS_post	2.00	59.5069	14.07966	288
	3.00	60.9300	15.09476	357
	Total	60.2946	14.65610	645

There was a significant effect of Time. Children improved over time significantly ($F(1,643) = 748.03$; $p < .001$). There was also a significant time by grade interaction. Standard three made more gains than standard two.

CC3 regular

Descriptive Statistics

	VAR00001	Mean	Std. Deviation	N
CC3reg_pre	2.00	12.0660	12.75032	288
	3.00	15.1373	13.47181	357
	Total	13.7659	13.23296	645
CC3reg_post	2.00	24.1632	12.28995	288
	3.00	25.1317	13.28732	357
	Total	24.6992	12.85077	645

There was a significant effect of Time. Children improved over time significantly ($F(1,643) = 723.19$; $p < .001$). There was also a significant time by grade interaction. Standard two made more gains than standard three.

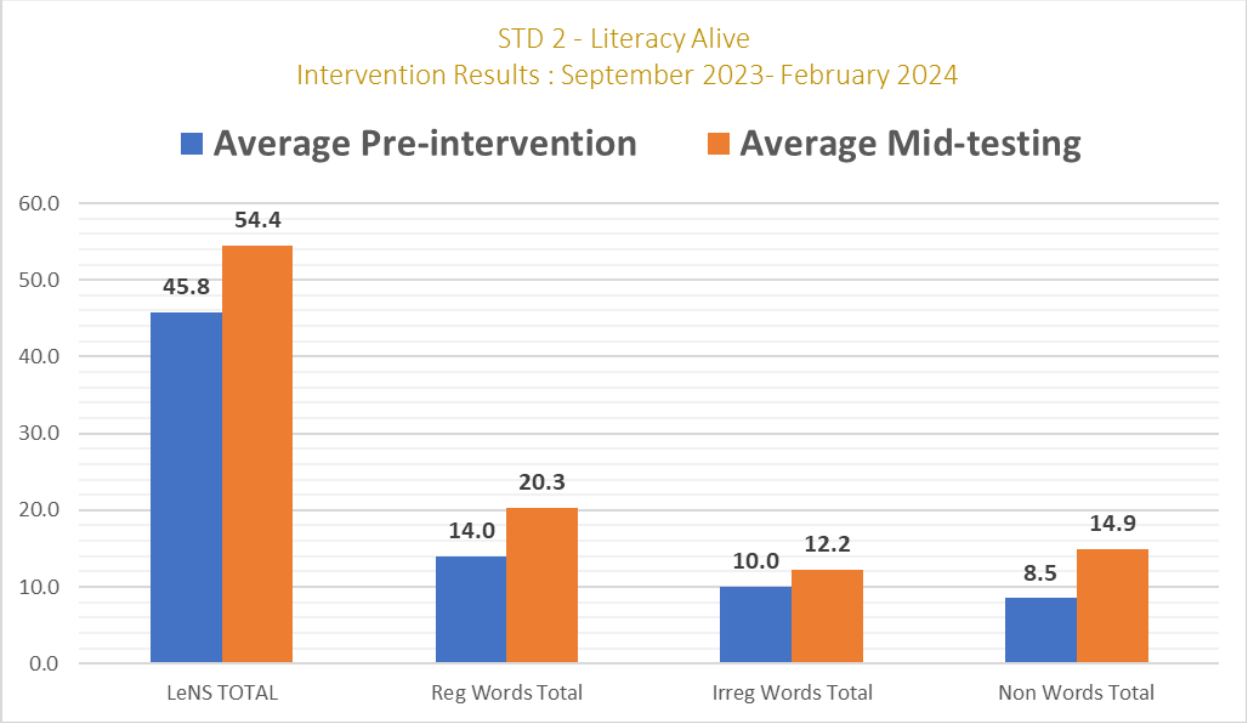
Analysis of MID POINT COHORT TESTING Data

JANUARY 2024

All test data was forwarded to the Canadian team leads and then the data was cleaned by University of Alberta team members. The data was run through a Statistical Package for Social Sciences (SPSS) program which identified various trends. Dr. Paradis met with Dr. George Georgiou and Dalia and Sandra (PH D students managing data) to review the data. They identified promising trends and various implementation follow up strategies for phase two of the project.

General Results

Standard 2

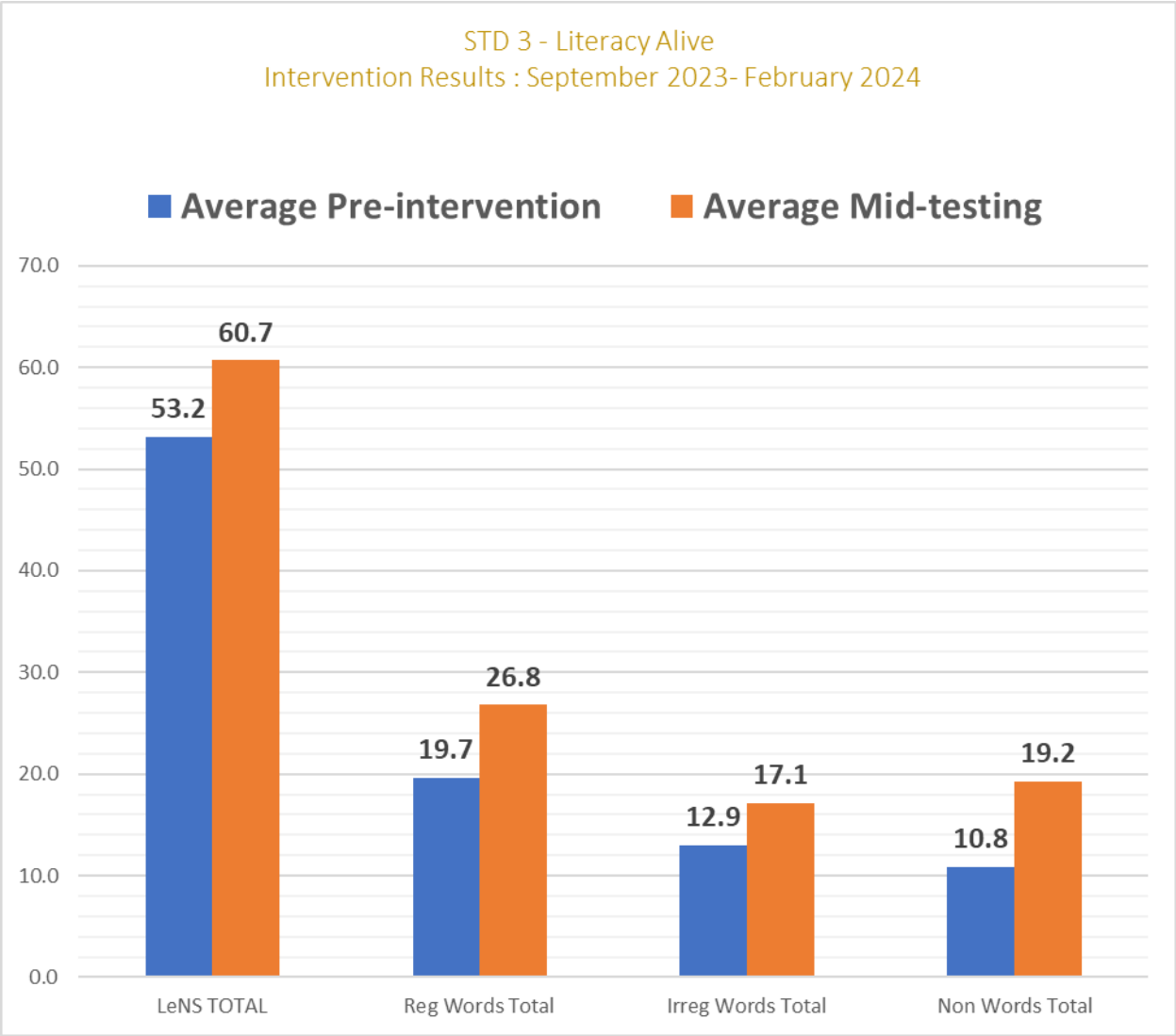


*All pretest mid-test comparisons are significant except for Irregular Word reading.

Percentages indicate the percentage of growth following 11 weeks of instruction.
Mid test score minus pretest score divided by pretest score x 100 = % growth

LeNs	20 %
Reg	50 %
Irreg	20 % (not taught this, should be part of next phase; expected lower score)
Non-words	75% (improvement which shows students using the strategies)

Standard 3



*All pretest mid-test comparisons are significant.
*Standard 3 had more school prior to COVID

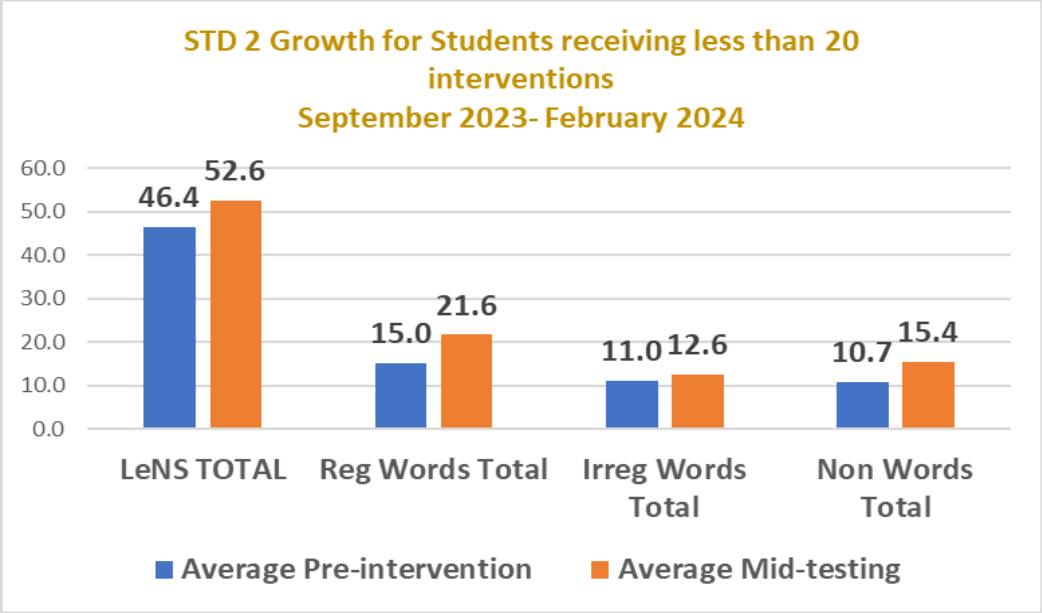
Percentages indicate the percentage of growth following 11 weeks of instruction.
Mid test score minus pretest score divided by pretest score x 100 = % growth

LeNS	14%
Reg.	36%
Irreg	25%
Non-Words	78%

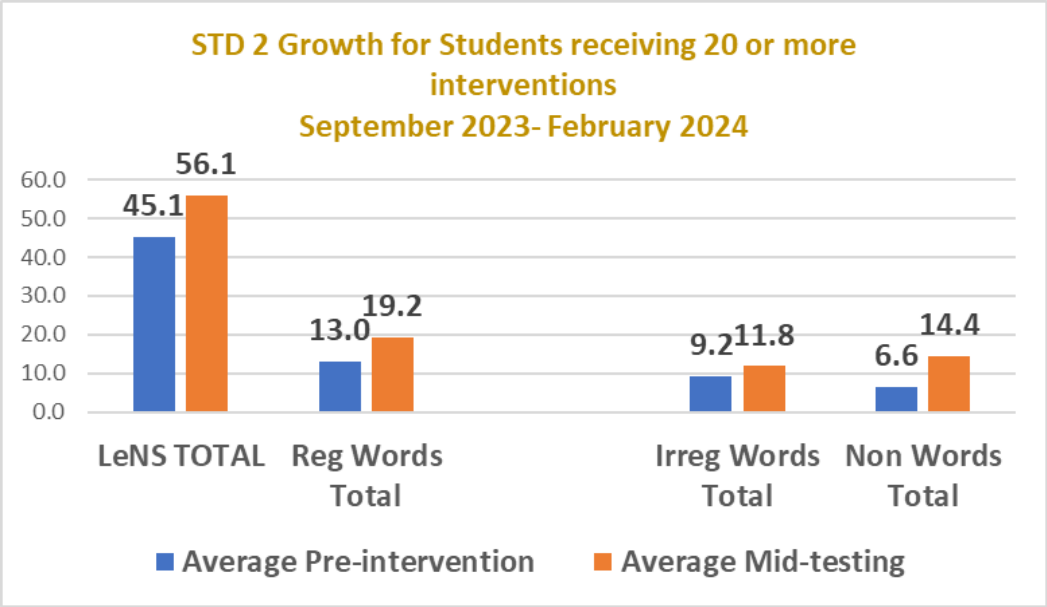
Results Divided by Standard and Number of Lessons Received

STANDARD 2

Less than 20 lessons



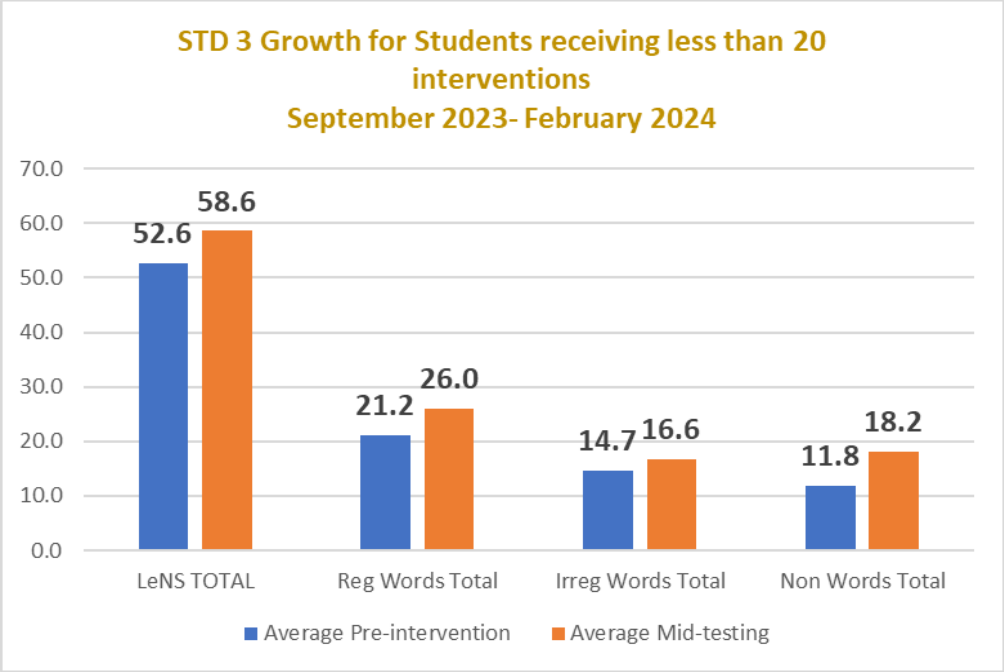
More than 20 lessons



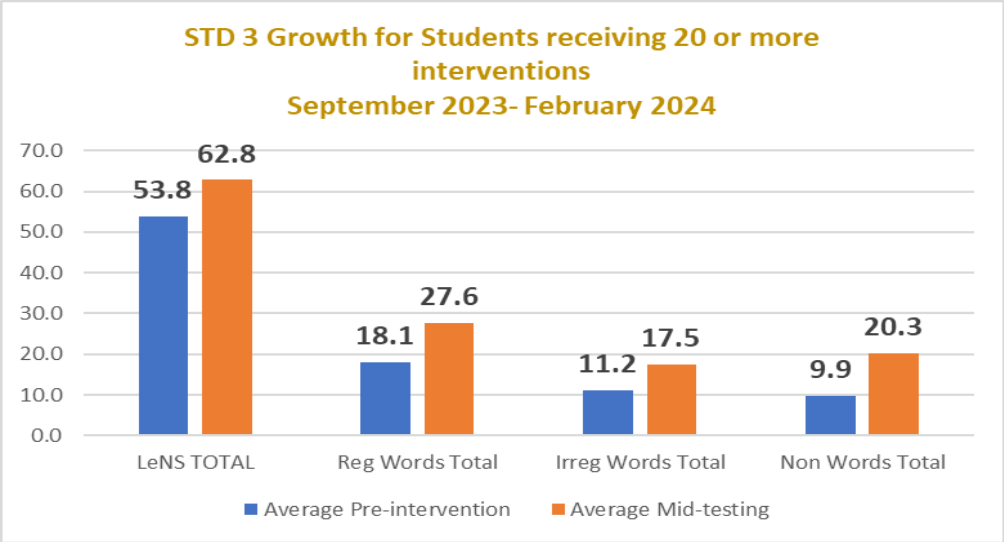
Conclusion: Standard 2 students who received more than 20 lessons showed greater improvements in regular, irregular, and non-word reading compared to students who had fewer than 20 lessons.

STANDARD 3[9]

Less than 20 lessons



More than 20 lessons



Conclusion: Standard 3 students who received more than 20 lessons showed greater improvements in LeNS compared to students who had fewer than 20 lessons.

[9] Selecting 20 lessons as the determining factor is somewhat arbitrary but shows that more lessons taught results in more strategies learned and applied.

OVERALL RECOMMENDATIONS

A. Data should be considered with caution, with reminders that this mid-point testing is a snapshot of implementation with the intent to find implementation trends. From a research perspective the sample size was significant enough to make reasonable predications of probable progress in the 48 government schools where mid-point testing did not occur.

B. Expand opportunities for Canadians and BRITE to meet regularly on program implementation.

C. Adjust year plan for project completion.

D. Follow up with Principals. Celebrate good implementation. Encourage principals of schools with less than positive implementation to be accountable to the Ministry to ensure full implementation in phase two.

E. BRITE to provide additional PD where warranted for both teachers and principals.

F. Engage in advance planning for possible CPD and next school year.

G. Advocacy - Share with communities the progress reports (possible media release, schools, parents, Rotary). Gather success stories from individual participants.

H. Embellish funding for Belize team leaders to offset personal costs incurred for transportation to visit schools.

NEXT STEPS

- Finalize program celebration and project follow up
- Teaching of irregular words and other components of a second year of implementation (share Alberta protocol)
- Develop a longer term program plan identifying which grades may benefit from the RI program in coming years.
- Is there an interest in CPD training in August
- Trust and relationship building between Ministry, Belize RI leaders and Canadian Team.