Vanuatu Early Grade Reading
Assessment
(VanEGRA) Baseline Survey

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ABSTRACT

In August 2010, the Government of Vanuatu carried out early grade reading baseline assessments in English and Francophone schools with financial support from local education partners and technical assistance from the World Bank. The results of the Vanuatu Early Grade Reading Assessment (VANEGRAs) are cause for concern. French language findings show that while most students develop some fundamental skills in grade levels 1, 2 and 3, by the end of Grade 3, less than 1 in 4 students are able to develop fluency in reading to understand most of the text they read.

The VANEGRAs survey also collected data on the attributes of students, teachers and schools. Factors that were shown to be predictors of better reading performance in the early grades include: speaking French at home, owning the school textbook, having literate parents, having books at home, reading at school and at home, attending kindergarten, doing homework, and receiving help from a family member to do homework. Neither teacher experience nor in-service training showed statistical effects on student reading outcomes and two types of certification showed negative and statistically significant effects on student outcomes both in reading fluency and comprehension. VANEGRAs also asked about use of seven reading instructional activities. Students who were never asked to learn the meaning of new words or practice grapheme sound correspondences showed negative and statistically significant effects. Conversely, students who were assigned reading daily in their own school time showed positive and statistically significant results. Lastly, VANEGRAs asked about teacher expectations for students' reading performance. Interestingly, the fact that some teachers allowed students to consolidate some reading skills later than the median expectation was associated with better and statistically significant results.

Based on the analysis presented, recommendations for improved reading instruction and greater parental involvement are presented at the end of the report.

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The Vanuatu Early Grade Reading Assessment (VANEGRA) baseline surveys in French and English are the result of the Government of Vanuatu's commitment to improve reading levels in the country through a mid-term process that incorporates assessment data to improve reading instruction and promote greater parental and community involvement in students learning outcomes. VANEGRA diagnoses comprise the first step in the process by providing Ni-Vanuatu education officials with a system-level diagnosis of how well – and at what pace -- Ni-Vanuatu children in Francophone and Francophone schools develop foundational skills needed to become literate.

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SUMMARY AND FINDINGS

This report summarizes the results of the French-language early grade reading assessment conducted in August 2010 by staff from the Vanuatu Ministry of Education. Overall, 1,293 students were assessed from 33 randomly-selected Francophone primary schools in Vanuatu. A separate survey was carried out in English-language schools at the same time. Financial support for the survey was provided by local education partners through the Vanuatu Education Road Map (VERM). Technical assistance and management support was provided by the World Bank.

The assessment is part of a global initiative aimed at helping countries measure how well children are learning to read in the early grades of primary education. It aims to help educators develop local knowledge about the specific *skills* students are struggling with and the *factors* that appear to contribute to reading development in their schools. Equipped with such evidence, education stakeholders can come together to devise response strategies to improve reading instruction, monitor student's reading progression, and promote greater parental and community involvement to ensure all children develop the skills needed to become effective readers.

The VANEGRA French assessment consisted of seven modules or sub-tests covering basic reading skills such as phonemic awareness, recognition of grapheme sounds, automatic word reading, decoding, oral reading fluency and comprehension – measured in terms of both reading and listening to short narrative passages. A short dictation exercise was included to test early writing skills such as spelling, orientation to text, spacing, capitalization, and punctuation. The VANEGRA French student test was complemented by a student contextual interview which collected information about socioeconomic characteristics, such as availability of reading books at home and literacy prevalence among family members. The survey also included a teacher questionnaire that gathered data on the qualifications of Francophone teachers, their expectations about reading outcomes and the frequency with which they use methods of reading instruction and assessment.

Although the VANEGRA French instrument followed a standardized process of adaptation to the local context, results are meant to be used to diagnose gaps in reading instruction and not for cross-country comparison. The survey seeks to provide a baseline standard of reading fluency in French. A version with assessment instructions in Bislama was also produced to accommodate students whose limited proficiency in French could have limited their understanding of the instructions in each sub-test. Grade 1 test results were disappointing due to floor effects and the grade was dropped from a large portion of the analysis. The reliability of the instrument to capture reading abilities in Grades 2 and 3 was estimated using Cronbach's alpha, a common measure of reliability of survey instruments; at a coefficient of 0.90. In a scale from 0 to 1, the minimum Cronbach coefficient acceptable in research is 0.7.

The analysis of VANEGRA French student data included descriptive statistics (means and standard deviations) to measure average levels in basic reading skills. Also, regression analyses were carried out to estimate average oral reading fluency and associated reading comprehension levels for the sample as a whole. Lastly, statistical analyses were carried out to estimate the relationship between teacher characteristic and student reading outcomes. The most relevant results are presented below, followed by a discussion of policy implications for reading instruction and teacher professional development in the country.

Survey results and main findings

As students progress across grades, they develop better competency in all basic reading skills; however, these gains do not lead to demonstrated reading fluency (words read correctly per minute) and improved comprehension for most Grade 3 students. As Francophone students progress from Grade 1 to 3, average competency in all sub-tests improves with the largest gains observed at the end of Grade 2. Yet, poor knowledge of the alphabetic principle appears to be one of the main reasons why students struggle to read words both in isolation and in the oral reading passage. Poor word-level reading abilities may be hindering the development of fluency in reading which could explain why at the end of Grade 3, only about 1 in 4 students (24% of Grade 3 students) is able to read at the fluency level needed to understand 60% or more of the text they read. In the Francophone sample, no Grade 1 student achieved the fluency standards. 2% of Grade 2 and 24% of Grade 3 students can be considered fluent readers. Among fluent students (N=110), 8% are in Grade 2 and 92% are in Grade 3, indicating the critical role Grade 3 plays in the development of reading fluency among beginning readers.

Low scores are partly due to the number of students for whom the test had to be discontinued because they lacked the minimum knowledge tested. In VANEGR French, a particular subtest could be discontinued if the student was unable to read the minimum number of letters or words needed. Early-stop cases are allowed in all sub-tests except listening comprehension and dictation. Students assessed as early-stop cases i.e., zero-score serve as a measure of the number of students with the lowest score possible. In VANEGR French, for the sample as a whole, the proportion of zero-score students is above 30% in sub-tests requiring phonemic awareness (initial sound identification) and word-level reading skills (familiar word reading, invented word reading, and oral passage reading). In sub-test 4 alone, 55% of the students in the sample were unable to successfully decode the first 5 invented words in the exercise, which suggests most students struggle to match letters (or groups of letters) to their sounds to create words. The inability to answer any questions correctly in a subtest was particularly notable in Grade 1, the floor effects being so severe that the grade was dropped from the majority of the analysis. The characteristics of students who were unable to answer any questions correctly are explored in detail.

Achieving oral fluency in reading is crucial to improve reading comprehension. As students achieve automaticity on the “mechanics” of reading –i.e., matching letters and graphemes to sounds to make up words and sentences- they develop fluency in reading, allowing them to read longer texts and focus on the meaning of the text. An analysis of oral reading fluency and reading comprehension among Francophone Ni-Vanuatu students showed that students achieve greater levels of reading comprehension when they read at an average rate of at least 45 correct words per minute (CWCPM). At this standard, 7% of the sample, or 107 out of 1,293 Francophone students tested, could be considered fluent in reading. The differences in oral reading fluency and comprehension between fluent and less-than-fluent are striking: while fluent students read almost all the narrative passage (56 out of 58 words) at an average fluency of 68 correct words per minute and comprehend about 64% of the text they read; less-than-fluent students read on average about 14 out of 58 words in the passage at an average fluency of 7 correct words per minute, which allows an average comprehension of only 9% of the text.

Finally, VANEGRA French results showed that in many sub-tests, girls performed better than boys and appeared to progress faster in some –though not all- of the skills tested. Girls' scores were statistically better than boys in 5 out of 7 sub-tests (grapheme recognition, familiar and unfamiliar word reading, oral passage reading, and the weighted dictation score). Non-statistically significant results in the remaining two sub-tests suggest that, on average, boys and girls struggle equally to isolate sounds of letters in the context of words (phonemic awareness skills) and understand stories they hear (listening comprehension). In addition, average differences in performance by gender resulting from the interaction of gender and grade showed that after controlling for the grade effect, gender differences are statistically significant starting in Grade 2 but the difference widens at the end of Grade 3. These differences suggest girls move into word-level fluency and reading fluency faster than boys, which may contribute to a larger number of girls achieving fluency - 9% or 67 of the 645 girls in the sample versus 5% or 38 of the 646 boys in the sample.

Factors contributing to greater reading fluency and comprehension for Francophone students in Vanuatu

At the student level

VANEGRA included a series of questions about student characteristics and behaviors which could be associated with reading abilities. For example, as one may expect, better performance on most VANEGRA French sub-tests was associated with students who reported having literate parents and having books at home. These associations, however, vary by grade and gender.

Following is a summary of characteristics and behaviors that were found to have the most impact on student reading outcomes:

Table 1 Student Factors Associated to Better Reading Outcomes

Factor	Impact	Estimated Difference
Books available at home	Positive	On average, students who reported having books at home scored almost 6 words per minute more in the reading fluency measure, about 6% better in reading comprehension and about 9% better in listening comprehension than those who reported not owning books at home.
Familial Literacy	Mostly Positive	Various effects and interactions, often depending on student gender.
Absent more than one week	Negative	On average, students who reported being absent more than one week during the school year scored 5 words per minute less in the reading fluency measure, 4% and 7% less in the reading and listening comprehension measures, respectively.
Attending a Kindergarten	Positive	On average, students who reported having attended kindergarten scored 5% better in listening comprehension and almost of a quarter of a percentage score in dictation.

The study also examined in-depth the characteristics of students who were unable to answer any of the questions on a subtest correctly. The same factors were significant as those impacting on literacy acquisition generally, however owning the text book had a positive relationship as students owning the text were more likely to be able to answer some questions.

At the teacher level

VANEGRA also explored the association between teacher characteristics and student performance using data collected through the teacher questionnaire on experience, certification, methods of instruction and assessment, and learning expectations. Interestingly, teacher experience had a small but positively significant effect on reading but teacher certification (Certificate of Primary Education) had a negative and statistically significant effect on reading fluency and comprehension. The effect of having the list of recommended reading texts is positive and statistically significant.

The following teacher characteristics and behaviors were associated with better student reading outcomes:

Table 2 Teacher and School Characteristics Associated to Better Reading Outcomes

Factor	Impact	Estimated Difference
Students copied down text from the chalkboard	Positive	Average gain of 5 CWPM in reading fluency, about 6% better reading comprehension scores but 7% worse scores in listening comprehension. Also, on average, students showed 2% improvement in dictation scores
Students retold a story that they had read	Negative	Average decline of almost 11 CWPM in reading fluency, 16% poorer reading comprehension and 4% poorer listening comprehension scores, as well as 9% decline in dictation scores
Students sounded out unfamiliar words	Negative	Average decline of almost 12 CWPM in reading fluency, 11% poorer reading and listening comprehension scores, and a decline of about 6% in dictation scores
Students Read Aloud	Mixed but mostly positive	Average gain of 25 CWPM in reading fluency, 6% better reading comprehension and 7% better listening comprehension scores, yet a 2% decline in dictation scores
Students assigned reading on their own	Mixed	Average decline of almost 10 CWPM in reading fluency, 6% better reading comprehension and almost 7% better listening comprehension scores, but a 2% decline in dictation scores
Library Present	Positive	Average gain of 8 CWPM in reading fluency, almost 7% better reading comprehension and almost 4% better listening comprehension scores, as well as 7% improvement in dictation scores
Supervision in Library	Positive	Average gain of 20 CWPM in reading fluency, about 15% better reading comprehension and 11% better listening comprehension scores, as well as 14% improvement in dictation scores
Reading Corner Present	Positive	Average gain of almost 5 CWPM in reading fluency, 9% better reading comprehension and almost 11% better listening comprehension scores, as well as 2% improvement in dictation scores
PTA Functioning	Mixed	Average decline of almost 2 CWPM in reading fluency, almost 3% decrease in reading comprehension but 7% better listening comprehension scores

Table 2 Teacher and School Characteristics Associated to Better Reading Outcomes (*contd*)

Factor	Impact	Estimated Difference
Meeting with Parents	Mixed	Average gain of almost half a CWPM in reading fluency, almost 1% decrease in reading comprehension but 3% better listening comprehension scores
School has Recommended Reading Texts	Positive	Average gain of almost 10 CWPM in reading fluency, 7% better reading comprehension scores and almost 5% improvement in dictation scores
Certification	Mixed (Certificate in Primary Education vs None)	Average decline of almost 2 CWPM in reading fluency but 3% better reading comprehension and almost 10% better listening comprehension scores. An average of 8% decline in dictation scores
Inservice Attendance	Negative	Average decline of about 5 CWPM in reading fluency, about 3% poorer reading comprehension and 5% poorer listening comprehension scores, as well as 8% decline in dictation scores
Teacher experience (recent graduates vs next group by experience)	Positive	Average gain of 11 CWPM in reading fluency, 13% better reading comprehension and 11% better listening comprehension scores, as well as 16% improvement in dictation scores

Note: CWCPM stands for "Correct Words in Connected Text Per Minute"

From assessment to intervention: next steps

VANEGRA French survey results call for an immediate response to improve reading instruction to ensure Francophone students are equipped with the knowledge required to become skilled readers. Specific recommendations include:

- **Improve the focus and structure of reading instruction to promote greater fluency in reading by the end of Grade 3.** Research has shown that developing fluency in reading is crucial to help students become effective readers in the first years of primary education. As students approach reading at a speed of about 45-60 words per minute, the reader becomes better able to focus on the meaning of the text rather than on individual letters and words. As shown by VANEGRA French results, students reading at least 45 correct words per minute were able to understand about 83% of the text they read. However, less than 1 in 10 Francophone students is able to reach this fluency level at the end of Grade 3. Two factors could contribute to explain these results. On the one hand, poor decoding skills suggest instruction falls short of developing a solid foundational knowledge of the alphabetic principle. On the other, poor French skills of students entering the Francophone stream may contribute to delay the development of pre-reading skills in Grades 1 and 2 as students struggle to develop language and reading skills simultaneously. As the MoE sets forth to implement the new K-12 curricula, it is fundamental that instructional improvements in the early grades take into account the linguistic diversity of the country and provide adequate strategies to prepare students for reading development in a secondary language (L2). In addition, the new curriculum opens up the opportunity to improve instruction of letter and word-level reading skills to promote a better sequenced instruction of basic reading skills.

- **Ensure teachers working in the early grades have the knowledge to improve their practice to impact the reading outcomes of their students.** In order to improve reading instruction in Vanuatu, teachers will have to improve their knowledge of reading instruction to improve classroom practice. Though most Francophone teachers in VANEGRA use their professional judgment to adjust expectations about reading outcomes, a number of them still consider some of these skills to be unimportant in reading development. Also, while some instructional activities rendered expected outcomes, the fact that other activities typically associated with better reading outcomes showed no statistical significance in Francophone schools suggests the need to review how these activities are carried out in the classroom to better understand the possible factors that are hindering their effectiveness. This is also true of the average effects of teacher methods observed on student outcomes.
- **Support the reading instruction skills of as many teachers working with beginning readers as possible.** Data from the teacher questionnaire showed that only 26% of the teachers in the sample participated in general in-service training courses and only 25% had attended in-service training on reading in the last two years. If only 1 in 4 teachers in the country benefit from learning about specific ways in which they can improve their practice, Ni-Vanuatu teachers will continue to practice their profession in isolation. The role of the newly created In-Service Unit (ISU) at the MoE will be critical to further develop teacher knowledge and practice for reading instruction. As such, it is recommended that VANEGRA findings inform the development of the lesson plans and materials and that ISU staff works in close collaboration with curriculum developers to ensure teachers understand the new curriculum goals and receive support on how to achieve them.
- **Establish *reference* reading standards to *monitor* reading development in the early grades.** As the MoE moves on to establish an oral reading fluency standard under VERM, it is important to consider that these indicators should be considered *reference* standards and not high-stakes benchmarks that would jeopardize additional funding or the promotion of teachers. Since these reference standards are drawn from baseline data, additional measures will be needed in subsequent years to learn about the rate at which Francophone students develop reading abilities. In this sense, reading standards should not be seen as high-stakes but an essential piece to monitor reading progression in the classroom. In order to set up national reference standards to monitor system-level quality improvements, it would be best to use the percentage of zero-score students in selected sub-tests as a marker and track reductions in the proportion at least biannually. Monitoring achievements over time will eventually provide more information on the rate and the way in which average fluency develops among Francophone students. A modified version of the test could be used to screen students during the school year that may be in need of additional support.
- **Help teachers translate national reference standards into easy-to-assess, easy-to-monitor reading goals to monitor the reading progression of their students during the school year.** In order for teachers and schools to be able to be held accountable for reading outcomes, teachers, school officials and parents need to understand what these standards mean and how each can support reading development in their own school. School development plans should contain reading improvement goals as part of their minimum service standards, as well as a description of activities aimed at encouraging reading. Parents and the community as a whole should be brought into this effort.

- **Introduce policy actions that increase student exposure to literacy outside the school.** VANEGRA French results showed how students who have reading books at home have better reading outcomes and are more likely to become fluent readers. The effect was positive for both boys and girls and for all basic reading skills. Thus, it is advisable that the MoE promotes increased student access to books at home. However, making more books available to students will not per se ensure better reading outcomes. Along with access to more reading materials, Ni-Vanuatu children will need support to develop a reading habit beyond the requirements of the school curriculum. One way of achieving this would be ensure the books being procured by the ongoing Book Flood program are not only grade-appropriate but that they are accessible to students in and outside of the classroom. Since 52% of the teachers reported having access to a school library, an adequate book-borrowing scheme carries the potential to expose students to print on a more regular basis. Another way of increasing exposure to literacy would be to develop community literacy programs where schools become a focal point of literacy in the community. Teachers and community leaders can start up reading clubs and reading competitions to further promote a reading culture among beginning and more experienced readers.
- **Promote strategies to assure greater parental and community involvement in the reading development process of children.** Research shows that the earlier the parental involvement, the more powerful and long-lasting the effects will be both in terms of academic and behavioral outcomes of children. Moreover, research also shows that the most effective form of parental involvement includes those where parents participated in learning activities at home. However, in order for parental involvement to be more effective, parents need not only to be informed about the academic progress of their children but also about ways in which teachers and the school planned to improve outcomes. If parents and schools communicate regularly on the academic progress of children, parents tend to monitor school and classroom activities, and coordinate efforts with teachers such as helping with homework and carrying out extracurricular activities. For this to happen, it is important that parents and schools commit jointly to the reading development process of children. In addition to providing information on the academic progress of children, schools can advise on –and even facilitate– different ways in which parents can promote reading at home. If reading outcomes are to improve in the country, reading development must be seen as a joint enterprise that extends beyond the teacher and the school classroom environment.
- **Finally, it is clear that more research is needed to better understand the factors that contribute to differences in reading performance between boys and girls.** An analysis of the factors that contribute to these differences is beyond the scope of this survey. However, VANEGRA French data showed that boys and girls finish Grade 1 at similar levels of performance in reading, but in Grade 2 girls transition into word-level reading faster than boys and the difference increases at the end of Grade 3. A better understanding of this phenomenon is critical to inform sector policies and increase the success of future reading development programs.

Chapter 1- Introduction

Since 2007, the Vanuatu Ministry of Education (MoE) has administered the Vanuatu Standardized Test of Achievement (VANSTA), a national assessment to monitor literacy and numeracy skills of students in Grades 4 and 6 of primary education. VANSTA's 2007 and 2009 results revealed that a large share of students is failing to achieve reading comprehension and writing outcomes expected at their grade level (SPBEA, 2009). While VANSTA provides an indication that many students are not reading at levels deemed appropriate for Grades 4 and 6, it does not provide detailed findings about problems in the primary system that lead to poor reading performance in Grades 1 through 3.

To complement VANSTA results, the Vanuatu MoE sought to learn if students in Grades 1 to 3 are developing the basic reading skills needed to *read* fluently and *understand* what they read. If VANSTA scores are the result of low competence in basic reading skills, it is necessary to identify gaps in instruction where additional instruction and inputs may be needed. In response, the Vanuatu MoE, local education stakeholders including donors,¹ and the World Bank joined efforts to conduct a national assessment of basic reading skills in Anglophone and Francophone schools, using adapted versions of the Early Grade Reading Assessment (EGRA) tool appropriate to the Vanuatu context. The assessments are part of a global initiative aimed at helping countries measure how well children are learning to read in the early grades of primary education.

From June 2nd to August 26th, 2010 a team of Anglophone and Francophone Ni-Vanuatu reading and language specialists, consultants, and staff from the MoE worked together with the World Bank to develop, trial, and administer the Vanuatu Early Grade Reading Assessment (VANEGRA) Surveys before the end of the 2009-2010 school year. The purpose of the VANEGRA surveys was three-fold:

1. To develop a baseline survey of basic reading skills and temporary reference standards to monitor reading performance in schools and system wide;
2. To build local capacity to replicate early grade reading assessments in the future; and
3. To work with local education stakeholders to interpret VANEGRA findings and analyze their policy and sector investment implications.

In particular, the Vanuatu assessments aimed to answer the following questions:

- **What are the basic reading skills acquired by Anglophone and Francophone Ni-Vanuatu students in Grades 1, 2 and 3?**
- **What are the reading fluency levels at which Ni-Vanuatu students reach high enough levels of comprehension to understand what they read?**
- **What are the factors that influence the acquisition of reading skills among Ni-Vanuatu students?**

¹ VANEGRA surveys received financial support from pooling partners (AusAID, NZAID, the European Union, UNICEF) in the Vanuatu Education Partners Group.

To answer these questions, the latest English and French versions of the EGRA tool were adapted to the Vanuatu context. Because the EGRA tool is an orally-administered test – i.e. carried out as an interview - it is suitable to be administered to young children whose reading and writing skills have not fully developed. Given Vanuatu's linguistic diversity and the difficulties reading assessment in a secondary language (L2) impose to students with poor language competence, two additional versions of the VANEGRA instruments (Bislama-English and Bislama-French) with instructions in Bislama to accommodate students whose limited proficiency in French or English could have limited their understanding of the instructions for each activity.²

The VANEGRA tools comprised three instruments: (1) a diagnostic instrument assessing basic reading, listening and writing skills among Grade 1, Grade 2 and Grade 3 students; (2) a student contextual interview gathering information on the student's background, administered to all participating students; and (3) a teacher questionnaire regarding teacher characteristics, expectations and assessment and instruction methods, answered by all Grade 1, Grade 2 and Grade 3 teachers in the sample schools. Each set of instruments was developed in English and French for their administration in Anglophone and Francophone schools, respectively.

This report summarizes the main findings from the **VANEGRA French survey** and provides policy recommendations to inform sector discussions and literacy improvements in Vanuatu. Equipped with information about the specific skills students are struggling with and the factors that appear to contribute to reading development in their country, education stakeholders in Vanuatu can come together to develop response strategies to improve reading instruction and monitor student progression, in order to ensure all children develop the skills needed to become effective readers.

Structure of the Report

Chapter 1 briefly presents the purpose of the survey and how VANEGRA results are expected to improve learning outcomes in Vanuatu. Chapter 2 summarizes the overall implementation of the survey, in particular, the process followed to develop the VANEGRA French instrument. Chapter 3 presents the main results from each of the sub-tests administered. Chapter 4 presents the analysis of oral fluency and reading comprehension levels and a discussion about the establishment of a reference standard for oral reading fluency in the country. Chapter 5 and Chapter 6 present the results of the analysis of student and teacher factors associated with reading acquisition among Francophone students. Finally, Chapter 7 draws conclusions about the key results to present possible recommendations for improving the quality of reading instruction in Francophone schools.

² Literacy acquisition in a secondary language (L2) is a complex process even if one does not consider the effect of oral competence in the subject's primary language (L1). Research on reading and writing suggest literacy acquisition in a secondary language (L2) may produce varying outcomes depending on the nature of literacy in the primary language (L1) and/or the extent to which it has been mastered (e.g. Alderson, 1984; Carrell, 1991; Carson, 1991). Many students will confront literacy acquisition in L2 with good foundational skills in L1 whereas others will do without sufficient oral competence to support literacy acquisition in L2. Since literacy acquisition in Vanuatu is instructed in L2, VANEGRA results should be interpreted as a measure of reading outcomes in L2.

Chapter 2: Survey Implementation³

In order to build local capacity to replicate early grade assessments in the future, the Ministry of Education of Vanuatu requested technical assistance from the World Bank during survey preparation and administration. Between June 2nd to August 26th and November 3rd to the 17th, 2011, the World Bank provided in-country support to selected Ministry staff to undertake the sample design, develop the VANEGRA instruments in English and French language, facilitate the training of enumerators and supervisors, coordinate survey logistics during the pilot and fieldwork, and carry out test marking and data entry.

Sample Design

On June 2nd – 31st, 2011, a series of preparatory meetings took place to discuss the scope and purpose of the survey. With advice from the World Bank, the Vanuatu MoE chose a national representative sample with contrast groups according to Grade level (Grades 1, 2 and 3). The final sample design did not incorporate contrast groups by school type and regions, thus survey results can only suggest estimates by Grade and gender.⁴ The target population was defined as students enrolled in Grades 1 to 3 in primary schools implementing the official curriculum. Using enrollment data from the Vanuatu Education Management Information System (EMIS), a sample of 33 schools was selected using a stratified random design with proportional allocation based on school type –government or government-assisted-, region,⁵ and school size to ensure all school types and regions would have a probability of selection equal to their actual distribution in the country. The final sample consisted of 1,293 students, 646 girls and 647 boys (see Table 1).

Table 3 - VANEGRA French sample by region, grade level and gender

Province	1st Grade			2nd Grade			3rd Grade			Total
	Male	Female	Total	Male	Female	Total	Male	Female	Total	
Malampa	41	39	80	39	41	80	40	40	80	240
Penama	23	26	49	29	21	50	24	26	50	149
Sanma	43	43	86	42	44	86	45	42	87	259
Shefa	44	42	86	45	45	90	45	43	88	264
Tafea	57	59	116	58	57	115	59	57	116	347
Torba	4	7	11	4	7	11	5	7	12	34
Total	212	216	428	217	215	432	218	215	433	1293

³ The term “survey instruments” is used refers to the set of VANEGRA documents administered to students and teachers. The term “assessment” refers to the VANEGRA diagnostic instrument consisting of 8 sub-tests or sections. The term “EGRA tool” is used as reference to the latest English, French and Spanish versions which have been adapted in EGRA-participating countries to fit the local context.

⁴ In EGRA minimum sample sizes, some 400 children are needed for any combination of contrast groups of interest. For example, a sample comparing male-urban would require some 400, as would female-urban, male-rural, and female-rural; thus, distinguishing by gender and locality would require a sample size of some 1600, whereas a simple baseline per grade would require only 400 per grade. In order to meet VANEGRA logistical costs and timeline, a decision was made to include only gender and grade ($\geq 1,200$ students) as contrast groups.

⁵ Due to geographical and cost limitations, only the main island in each of the provinces was surveyed.

Development of the VANEGRA Instrument

Due to differences in language, culture and expectations about learning outcomes, the EGRA tool is adapted and piloted to fit the context of each country where applied. From June 20th to 30th, 2011, teams of four Anglophone and four Francophone reading, language and assessment specialists from the MoE developed draft versions of the instruments which were piloted in Port Vila from July 12th – 14th, 2011. Minor changes were incorporated to the pilot instruments to improve readability and clarity of questions in the narrative passages. From August 2nd to 11th, four training workshops - 2 for Anglophone and 2 for Francophone enumerators - were held simultaneously in Port Vila and Luganville. These workshops were attended by temporary and retired teachers as well as zone curriculum advisors from the six provinces in the country. The decision to hold four parallel training sessions was made to reduce transport costs and develop capacity among VITE/CDU and EAU staff to conduct similar trainings in the future.

On August 10th, each training session held an enumerator practicum in selected schools in Luganville and Port Vila. After the practicums, each team had feedback meetings where great emphasis was placed on the importance of ensuring that forms were completed fully, clearly, and correctly by every enumerator. Inter-rater reliability – i.e. the ability of enumerators to administer the assessment correctly and consistently - was calculated with results of 83% and above for all sub-tests except Sub-test 2 –Grapheme Recognition – for which a 70% rate of reliability was achieved.

Fieldwork and Data Entry

Data collection took place between August 11th and 26th, 2011. Data collection was carried out by 32 enumerators, 3 VANEGRA Francophone trainers and 1 fieldwork coordinator in 33 sample schools in the islands of Gaua (Torba Province), Pentecost (Penama), Malekula (Malampa), Éfaté (Shefa), Santo (Sanma), and Tanna (Tafea). Complete survey documents were brought back to Port Vila by the VANEGRA trainers and fieldwork coordinators for marking. Data entry took place between November 3rd and 17th, 2010. There were several instances of ‘out of range responses’ from the teacher and student questionnaires that were coded as missing data in the analysis. For the 105 teachers surveyed in French-speaking schools, item response rates were above 80%. For the students, item response rates were also above 80%. Teacher responses were matched to their students based on school, section and grade where section and grade –e.g. grade 1 section A - indicate the particular student-teacher pair within a school.

Reliability of the Instrument

Cronbach’s alpha was calculated for the VANEGRA instrument to measure the reliability of the test. Results showed a strong internal consistency with a coefficient of 0.93. As a rule of thumb, an alpha coefficient of 0.80 is considered good and 0.7 is typically the minimum acceptable. The alphas for each sub-test were close to 1, suggesting high reliability across VANEGRA sub-tests (see Annex 1 for the VANEGRA correlation matrix).

⁶ The authors would like to thank an anonymous referee for pointing this out.

Once children learn to apply the foundational reading skills with a certain level of reflex or automaticity, they can move beyond the task of decoding a text (Stage 1) to begin deriving its meaning (Stage 2). As children learn sounds that link to form words, they can begin connecting those sounds to printed words and the idea behind those words. Then they can link words to form sentences, paragraphs, and stories. In other words, children transition from learning to read

Table 4 - Reliability of the VANEGRA French assessment

Item	Obs	Sign	item-test correlation	item-retest correlation	average inter item covariance	alpha
Phonemic Awareness	1293	+	0.70	0.61	0.66	0.93
Correct Graphemes Per Minute	1293	+	0.89	0.85	0.60	0.91
Correct Words Per Minute	1293	+	0.93	0.90	0.59	0.91
Correct Non Words Per Minute	1293	+	0.90	0.87	0.60	0.91
Oral Reading Fluency	1292	+	0.89	0.85	0.60	0.91
Reading Comprehension	1293	+	0.83	0.77	0.62	0.92
Listening Comprehension	1293	+	0.59	0.48	0.70	0.94
Writing	1293	+	0.82	0.76	0.63	0.92
Test scale					0.63	0.93

However, due to the high number of zero-scores in the data, it was deemed possible that the statistics in Table 4 could be biased upwards due to a spurious correlation.⁶ The statistics were recalculated with the zero-scores removed and are given in Table 5 below.

Table 5 - Reliability of the French EGRA Assessment: Zero Scores Removed

Item	Obs	Sign	item-test correlation	item-test correlation	average inter item covariance	alpha
Phonemic Awareness (totals)	1296	+	0.71	0.59	0.60	0.91
Correct Graphemes Per Minute	1037	+	0.86	0.81	0.54	0.89
Correct Words Per Minute	826	+	0.91	0.88	0.53	0.89
Correct Non Words Per Minute	586	+	0.78	0.82	0.55	0.90
Oral Reading Fluency	808	+	0.79	0.83	0.54	0.89
Reading Comprehension (total)	1296	+	0.82	0.75	0.55	0.89
Listening Comprehension (total)	1296	+	0.63	0.49	0.63	0.92
Writing	1296	+	0.81	0.73	0.52	0.90
Test scale					0.56	0.91

Table 6 - Reliability of the French EGRA Assessment: Grades 2 and 3 Only

Item	Obs	Sign	item-test correlation	item-test correlation	average inter item covariance	alpha
Phonemic Awareness %	866	+	0.63	0.52	0.61	0.92
Correct Graphemes Per Minute	866	+	0.86	0.81	0.54	0.89
Correct Words Per Minute	865	+	0.92	0.88	0.53	0.89
Correct Non Words Per Minute	865	+	0.89	0.85	0.53	0.89
Oral Reading Fluency	865	+	0.88	0.83	0.54	0.89
Reading Comprehension %	866	+	0.81	0.75	0.56	0.90
Listening Comprehension %	866	+	0.54	0.41	0.64	0.93
Writing	866	+	0.78	0.70	0.57	0.90
Test scale					0.57	0.91

However, when the three grades were treated as three separate subsamples in this manner, it became apparent that in Grade 1 the very high proportion of zero-scores in the data resulted in an unreliable instrument. As a result, the Grade 1 results have been excluded from the majority of the analysis in this report. The characteristics underlying the floor effects in Grade 1 are explored in Chapter 3. Tables 6 and 7 give the reliability of the subsample of Grades 2 and 3 only; Table 6 with zero scores included and Table 7 with the zero scores excluded. In both cases, Cronbach's alpha is at or above 0.90. Complete reliability tables by Grade (including Grade 1) are given in the annex.

Table 7 - Reliability of the French EGRA Assessment: Grades 2 and 3 Only, Zero Scores Removed

Item	Obs	Sign	item-test correlation	item-test correlation	average inter item covariance	alpha
Phonemic Awareness (totals)	866	+	0.64	0.51	0.58	0.91
Correct Graphemes Per Minute	825	+	0.85	0.79	0.51	0.88
Correct Words Per Minute	758	+	0.91	0.88	0.49	0.87
Correct Non Words Per Minute	572	+	0.87	0.82	0.52	0.88
Oral Reading Fluency	724	+	0.88	0.83	0.50	0.88
Reading Comprehension (total)	866	+	0.80	0.73	0.52	0.88
Listening Comprehension (total)	866	+	0.56	0.42	0.60	0.91
Writing	866	+	0.77	0.69	0.53	0.89
Test scale					0.53	0.90

The acquisition of reading skills is individual in the manner in which they are acquired. Some skills are attained simultaneously in some children, while others proceed in a more linear fashion. However, there are some average progressions that can be observed across the sample. Figure 1 indicates letter level, word level, reading fluency and comprehension attainment by percentile in the VANEGRA French sample. The graph indicates that the various skills are acquired together, though in this sample, certain skills such as decoding unfamiliar words are acquired at a later stage compared to familiar words and letter recognition.

Figure 1 Letter Level, Word Level, Oral Reading Fluency and Reading Comprehension Performance

Figure 2 indicates the progression of oral reading fluency with reading and listening comprehension. In this sample, on average, listening comprehension is attained ahead of reading comprehension and oral reading fluency.

Figure 2 Oral Reading Fluency, Reading and Listening Comprehension

Figure 3 indicates the progression of reading comprehension, oral reading fluency and dictation skills. It shows that dictation skills are acquired at a very similar rate to reading comprehension in this sample and shows the relationship between the stabilization of memory through writing and the skills required to comprehend text that is read.

Figure 3 Oral Reading Fluency, Reading Comprehension and Dictation Scores

In summary, the VANEGR English instrument has good reliability, even when zero-score cases (discussed in Chapter 3) are removed, but this required removing Grade 1 from the majority of the analysis. The results of the survey indicate that the basic literacy skills are acquired together and, although they are acquired at different rates and in different progressions amongst students, some average relationships can be observed across the sample.

Chapter 3: VANEGR French Results

Structure of the Assessment

As has been confirmed by scholars working to understand reading acquisition in multiple languages, (Jimenez and O'Shanahan Juan, 2008; Linan-Thompson and Vaughn, 2007; Abadzi, 2006; Sprenger-Charolles, 2004; Chiappe et al., 2002), being able to read well requires a grasp of five basic skills in almost any alphabetic language in which print can be decoded into sounds (National Reading Panel, 2000):

- **phonemic awareness**—focusing on, manipulating, breaking apart, and putting together sounds orally;
- **phonics**—linking written letters to their sounds and forming spelling patterns;
- **fluency**—achieving speed, accuracy, and expression in reading;
- **vocabulary**—knowing words (both oral and written) and their meaning; and
- **comprehension**—understanding the concepts read or heard.

Though not all children develop their reading abilities in the same way or pace, the literature shows that all readers progress through a series of phases or stages –sometimes simultaneously– in their reading development process (RTI, 2010).

Figure 4 - Stages of Reading Development

Exhibit 3. Stages of Reading Development		
Stage	Name	The Learner
Stage 0: Birth to Grade 1	Emergent Literacy	Gains control of oral language; relies heavily on pictures in text; pretends to read; recognizes rhyme
Stage 1: Beginning Grade 1	Decoding	Grows aware of sound/symbol relationships; focuses on printed symbols; attempts to break code of print; uses decoding to figure out words
Stage 2: End of Grade 1 to End of Grade 3	Confirmation and Fluency	Develops fluency in reading; recognizes patterns in words; checks for meaning and sense; knows a stock of sight words
Stage 3: Grade 4 to Grade 8	Learning the New (Single Viewpoint)	Uses reading as a tool for learning; applies reading strategies; expands reading vocabulary; comprehends from a singular point of view
Stage 4: Secondary and Early Higher Education	Multiple Viewpoints	Analyzes what is read; reacts critically to texts; deals with layers of facts and concepts; comprehends from multiple points of view
Stage 5: Late Higher Education and Graduate School	A Worldview	Develops a well-rounded view of the world through reading

Source: Roskos et al., 2009.

Source: RTI, 2010.

Once children learn to apply the foundational reading skills with a certain level of reflex or automaticity, they can move beyond the task of decoding a text (Stage 1) to begin deriving its meaning (Stage 2). As children learn sounds that link to form words, they can begin connecting those sounds to printed words and the idea behind those words. Then they can link words to form sentences, paragraphs, and stories. In other words,

children transition from learning to read to reading to learn (Stage 3 and beyond). Comprehension is the ultimate prize—the difference between “reading it” and “getting it” (RTI, 2010). The structure of the EGRA tool in different international applications used this knowledge as a reference point during the adaptation of the tool to local contexts (Figure 2).

Figure 5 - Early Grade Reading Assessment Components

Stage	Test Components*
Stage 0: Emergent Literacy Birth to grade 1	<ul style="list-style-type: none"> • Concepts about print • Phonemic awareness • Listening comprehension
Stage 1: Decoding Beginning grade 1	<ul style="list-style-type: none"> • Letter naming • Letter sounds • Syllable naming • Nonsense word reading • Familiar word reading
Stage 2: Confirmation and Fluency End of grade 1 to end of grade 3	<ul style="list-style-type: none"> • Paragraph reading (oral reading fluency) with comprehension • Dictation

* Not all components are tested in all languages.

Sources: RTI, 2009; Roskos et al., 2009.

Source: RTI, 2010.

In particular, the VANEGRA French assessment focused on measuring these skills plus basic listening and writing skills through seven modules or sub-tests: (1) identification of initial sounds in words; (2) grapheme sound knowledge; (3) familiar word reading; (4) invented word reading; (5) oral reading fluency with comprehension; (6) listening comprehension; (7) and dictation (see Annex 2 for a copy of the VANEGRA French instrument). Table 3 below shows how these skills relate to each of the VANEGRA French components, measures and indicators.

Table 8 - VANEGRA French Instrument Structure and Early Skills Tested

Sub-test	Early reading skill	Skill demonstrated by students' ability to:	Measure and Indicator
1. Identification of initial sounds	Phonemic awareness	Segment words into 2 to 5 phonemes Identify words with different beginning or ending phoneme	Phoneme segmentation as the number of sounds correctly identified
2. Grapheme knowledge	Phonics	Provides the sound of upper- and lowercase graphemes distributed in random order	Grapheme sound fluency in terms of correct grapheme sounds identified per minute (CGPM)
3. Familiar word reading	Word reading	Read simple and common one- and two-syllable words	Familiar word fluency in terms of correct familiar words read per minute (CFWPM)
4. Invented word reading	Alphabetic principle	Make grapheme-phoneme correspondences (GPCs) through the reading of simple invented –i.e., invented- words to test decoding skills	Invented word fluency in terms of correct invented words read per minute (CUWPM)
5. Oral reading fluency with comprehension	Oral reading fluency	Read a text with little effort and at a sufficient rate	Oral reading fluency in terms of correct words read per minute in a narrative passage (CWCPM)

Sub-test	Early reading skill	Skill demonstrated by students' ability to:	Measure and Indicator
	Reading comprehension	Respond correctly to different types of questions, including literal and inferential questions about the text they have read	Response to questions after reading a story as a percentage of correct answers
6. Listening comprehension	Listening comprehension	Respond correctly to different types of questions including literal and inferential questions about the text the enumerator reads to them	Response to questions after hearing a story as a percentage of correct answers
7. Dictation	Alphabetic principle	Write, spell, and use grammar properly through a dictation exercise	Write, spell, and use grammar properly through a dictation exercise, determined by the percentage of overall early writing skills (spelling and basic conventions), weighted score.

Note: Adapted by the authors, based on RTI, 2009 and Linan-Thompson, 2010.

Administration of the VANEGRA French Instrument

The VANEGRA French assessment was administered via face-to-face interviews between an enumerator and a student.⁷ Each interview lasted 20 to 25 minutes from the onset of the test to completion of the student background questionnaire. In five of the seven sub-tests in the VANEGRA instrument, students had 60 seconds to complete the sub-test in order to assess automaticity in a given skill. To be successful readers, basic reading competencies have to be automatic. Fluency measures assess not only whether or not a child knows something, but whether they have internalized the knowledge and can process the information automatically (Linan-Thompson, 2007). Time-limitation allows proper comparison of fluency across slow readers and fast readers who may register the same scores at different periods of time (RTI, 2009).

In VANEGRA, student scores in time-limited sub-tests were calculated as the number of correct items – i.e. letter names, letter sounds, or words - read per minute. If a student completes all of the words before the time expires, the time of completion is recorded and the number of items correctly read per minute is estimated on that time period.⁸ Selected sub-tests applied an “early-stop rule” to discontinue the administration of a sub-test if students were unable to correctly respond to any of the items in the first of ten lines (Sub-tests, 2,3,4,5a), or if their responses for the first five items were incorrect (Sub-test 1).⁹ In this situation, the enumerator was asked to mark the box that read “Check this box if the exercise was discontinued because the child has no correct answers in the first line” and to proceed to the next sub-test in the test (RTI, 2010).¹⁰

⁷ The term enumerator is used in reference to purposely trained interviewers administer early grade reading assessments.

⁸ Correct Items Per Minute = (Total items read – Total items incorrect) / [(60 – Time remaining on stopwatch) / 60] (RTI, 2009)

⁹ The rule was established to avoid frustrating students who did not have the skill or did not understand the task of the sub-test (RTI, 2010).

¹⁰ See Annex 2 for a copy of the VANEGRA French instrument.

The justification to discontinue a sub-test has two reasons. First, the early stop rule helps avoid frustration among students whose dispirit may affect their performance in subsequent sub-tests. Second, the early stop rule is also an approximation of zero-scores throughout the test: as in most psychometric tests, it is assumed that students who fail the first initial items will fail the remainder of the test, especially if test items become progressively more difficult, as in the case of VANEGRA. Sub-tests 6 and 7 did not apply the “early stop rule” so results in these sub-tests relate to the total sample of students and report percentage of correct answers over the total number of items in the sub-test.

For each sub-test in VANEGRA, results are presented first in terms of the percentage of zero-score students, as well as the average score tested. The reason for this is that the percentage of zero-score students represents students who showed no evidence of the skill tested whereas the average score represents the average rate of acquisition of a given skill. In VANEGRA French, across sub-tests and grades, the largest proportions of early-stop cases appeared in sub-test 4 (invented word reading), sub-test 5a (oral passage reading), and sub-test 3 (familiar word reading). The sub-test that showed the lowest percentage of early-stop cases was sub-test 1 (grapheme sound knowledge) where the test had to be discontinued only for 20% of the students in the sample.

Figure 6 – VANEGRA French: Zero-score students as a percentage in the sample as a whole

As expected, the assessment had to be discontinued for a larger percentage of Grade 1 students (see Figure 4 below). However, students make great progress in reading development in Grades 2 and 3 as the number of zero-score students decreases notably. In these grades, less than 20% of the students in Grade 3 were unable to decode a single word, and less than one in ten was unable to read the first 9 words in the oral reading passage or read the first five familiar words in the activity.

Figure 7– VANEGRA French: Zero-score students as a percentage in the sample per grade

The characteristics of students who were unable to answer any questions on a subtest correctly were explored in a series of logit models. The logit model is similar to an Ordinary Least Squares model, but instead of a continuous dependent variable, it explores the relationship of a binary dependent variable. In our case, the binary variable was constructed as students able to answer some questions correctly on the relevant subtest and those who were able to answer none.

Table 9 gives the results of these logit models on each of the subtests. As expected, grade progression has a substantial relationship with the ability to answer some correct answers: students in Grades 2 and 3 are more likely to fall into the group who are able to answer some questions correctly. Gender was not a significant predictor in any subtest, except in the identification of phonemes, dictation where girls were more likely to answer some questions correctly. When interacted with Grade in the listening comprehension test. In this case, girls in Grade 2 were more likely to answer some questions than boys.

The languages spoken at home did not have a significant relationship with the binary dependent variable and neither did doing homework except on the dictation subtest. However, reading at home had a significant, positive association with the ability to answer some questions correctly on the listening comprehension subtest and attending a kindergarten had a significant, positive association with being able to read some familiar words correctly and answer some dictation elements correctly. Reading materials at home had a positive relationship with some subtests including unfamiliar word-reading skills and listening comprehension.

Overall, students in the early-stop or zero-score category were less likely to have reading materials or literate family members at home and less likely to use them. They were less likely to be girls and more likely to be students in younger grades.

Table 9 – Logit Results: Zero Score Cases v Some Correct Answers

	Sub-test 1	Sub-test 2	Sub-test 3	Sub-test 4	Sub-test 5a	Sub-test 5b	Sub-test 6	Sub-test 7
Binary Variables:	Initial Sounds	CSPM	CFWPM	CIWPM	CWCPM	RCOMP	LIST COMP	DICT
Gender	-0.2151 0.3170	0.3846 0.0560	0.2943 0.2710	0.3229 0.5320	0.1253 0.6090	-0.0487 0.9220	-0.3377 0.1410	0.4110 0.0410
Grade 2	1.2775 0.0000	2.5168 0.0000	2.9241 0.0000	3.2944 0.0000	2.2261 0.0000	1.8017 0.0000	0.8977 0.0000	1.2126 0.0000
Grade 3	2.4927 0.0000	3.8422 0.0000	4.3555 0.0000	4.7298 0.0000	3.7864 0.0000	3.6395 0.0000	1.8747 0.0000	2.3295 0.0000
Girl in Grade 2	0.4116 0.1680	-0.1815 0.6610	0.3112 0.3990	-0.0597 0.9140	0.4006 0.2310	0.4555 0.4060	0.5900 0.0520	0.2336 0.4730
Girl in Grade 3	0.4915 0.1800	0.5679 0.5120	0.3304 0.5290	-0.0954 0.8680	0.1802 0.6900	0.2975 0.5810	0.3305 0.3030	-0.0187 0.9650
English (French) at Home	-0.0860 0.5980	-0.2485 0.2460	-0.0854 0.6780	0.0213 0.9040	0.2665 0.1540	-0.1143 0.5100	0.0616 0.6840	0.0813 0.6560
Bislama at Home	0.0350 0.8750	-0.3241 0.2470	-0.0554 0.8430	0.0334 0.8960	0.1974 0.4330	0.6226 0.0200	0.3359 0.1180	-0.0211 0.9290
Owns Textbook	0.1319 0.3680	0.0323 0.8600	0.3918 0.0300	0.4722 0.0050	0.3168 0.0560	0.3323 0.0520	-0.1139 0.4190	0.2845 0.0680
Teacher Reads Aloud	0.0876 0.7030	0.4277 0.1120	0.1941 0.5020	-0.2541 0.3650	0.4305 0.0980	-0.2246 0.4260	0.2537 0.2630	0.2344 0.3180
Reading Material at Home	0.2090 0.1630	0.0146 0.9420	0.2100 0.2710	0.4283 0.0080	-0.2268 0.1870	0.3815 0.0140	0.4864 0.0000	-0.0517 0.7570
Family Member Literate	0.1248 0.5630	0.1489 0.5670	-0.0149 0.9560	0.4874 0.0490	0.0900 0.7180	0.4722 0.0660	0.5929 0.0050	0.1921 0.3880
Does Homework	0.0650 0.7200	0.2206 0.2870	-0.0661 0.7710	0.0299 0.8980	0.0684 0.7390	-0.1572 0.5120	0.1235 0.4910	0.3922 0.0320
Reads At Home	0.2722 0.0980	0.4682 0.0230	0.2377 0.2500	-0.0538 0.7750	-0.0556 0.7690	0.1874 0.3190	0.2746 0.0770	0.2238 0.2010
Attended Kindergarten	0.2675 0.1900	0.0960 0.7180	0.5080 0.0440	0.3327 0.1400	0.3752 0.1060	0.2174 0.3540	0.1851 0.3470	0.3826 0.0740
Absent >1 Week	-0.2256 0.0920	-0.1220 0.4770	-0.2740 0.1060	-0.3369 0.0250	0.0279 0.8550	-0.2334 0.1130	-0.0845 0.5000	-0.0070 0.9610
Constant	-1.4117 0.0000	-0.8460 0.0160	-2.6056 0.0000	-4.2193 0.0000	-2.5711 0.0000	-4.3473 0.0000	-2.4315 0.0000	-1.3987 0.0000
pseudo R ² N	0.2042 1296.0000	0.3213 1296.0000	0.4351 1296.0000	0.3744 1296.0000	0.3460 1296.0000	0.2872 1296.0000	0.1572 1296.0000	0.1833 1296.0000
Wald chi ² P-value	352.5500 0.0000	416.5300 0.0000	737.0600 0.0000	668.5900 0.0000	592.5400 0.0000	464.1900 0.0000	282.2300 0.0000	269.5300 0.0000
Test for Goodness of Fit								
Pearson Chi ² goodness of fit pvalue	526.6600 0.4226	656.3300 0.0000	589.9700 0.0193	541.8600 0.2552	564.9700 0.0891	514.8400 0.5679	503.6800 0.6991	520.7200 0.4953
% correct classification	75	83.72	86.27	78.7	82.72	79.32	69.21	76.85

Despite pilot testing, which did not indicate any such problems, the floor effects in Grade 1 were so pronounced that in most of the following analysis (unless otherwise specified) the grade has been removed.

VANEGRA French Results per Sub-test

VANEGRA French results show reading gains across the three grades tested. Across grades, Francophone students appear to have a basic knowledge of letter and grapheme sounds, which progressively consolidates for almost all of them at the end of Grade 3 as seen by the low proportion of Grade 3 students scoring zero in sub-test 1. However, the average rate of progress is slow which may be hindering the development of word-level reading skills, oral reading fluency and comprehension. Looking at differences in performance between boys and girls, VANEGRA French results showed evidence of gender differences in some sub-tests in favor of girls, though the size and significance of the effect varies per skill tested. Gender differences are generally more pronounced in later grades, and these differences are statistically significant for familiar word reading, narrative passage reading and writing.

For each of the sub-tests below, average results are presented for the sample as a whole and per grade, as well as without the proportion of zero-score students. There are two reasons behind this decision. On the one hand, some researchers argue that in cases where there is a large presence of zero-score students, overall means tend to underestimate the true average score of the population. On the other hand, the use of average means without zero-score students tends to overestimate the true average score. Since one of the purposes of this survey is to inform policy decisions over the establishment of temporary reference standards of oral reading fluency in the country, we believe it is important to present both results in order to inform policy discussions and future decisions over where and how to establish adequate reference reading standards for Vanuatu.

Sub-test 1 – Initial Sound Recognition¹¹

In order to read, each of us must turn the letters we see into sounds, sounds into words, and words into meaning. Successfully managing this process requires the ability to work in reverse; that is, students should also grasp that words are composed of individual sounds and understand the process of separating (and manipulating) words into sounds (Snow et al., 1998). The ability to identify sounds in words, to separate words into sounds, and to manipulate those sounds is termed *phonemic awareness*, found to play an important role in reading acquisition and the number one predictor of success in reading, better than socioeconomic status, preschool attendance, or reading time in the home (Share, Jorm, Maclearn, & Matthews, 1984). Testing for and remediating this skill is thus important for later reading development.

Thus far, the EGRA tool has piloted an assessment of phonemic awareness in two different ways: using phoneme segmentation and identification of onset and rime sounds (first and last sounds). Phoneme segmentation – i.e. the division of words into phonemes – is one of the most complex skills of phonological awareness and should be emphasized in the early grades (Linan-Thompson & Vaughn, 2007). It is also one of the most predictive of later learning skills. Thus far, phoneme segmentation has proved difficult to administer. The VANEGRA instrument selected a simpler task – i.e. initial sound identification – to assess student's ability

¹¹ Throughout this section, sub-test description is based on the Early Grade Reading Assessment Toolkit (RTI, 2009).

in phoneme segmentation. A set of 10 French familiar words was selected from a list of words commonly used in children books, community life and school texts books available in Vanuatu. Students were asked to identify the initial sound in each of the words. The enumerator read each word aloud twice before asking the student to identify the sound and recording the answer as correct, incorrect, no answer in each item in the sub-test.

Scores are defined as the average number of initial sounds identified from a list of 10 one- and two-syllable words included in the exercise. On average, students identified 5.4 initial sounds. Student performance in this sub-test showed one of the best improvements across grades (21% reduction in zero-score students from Grade 2 to Grade 3) with students scoring an average of 4.1 initial sounds at the end of Grade 2 to an average of 6.6 initial sounds at the end of Grade 3. Boys and girls performed similarly on the identification of initial sounds. Both boys read 5.1 and girls 5.6 initial sounds out of ten. The differences between boys and girls in each grade are small and they are statistically significant only for Grade 3.

Table 10 – Sub-test 1 Initial Sound Recognition: Results by Grade and gender

Subtest 1 -Number of correct initial sounds identified		N	Mean	SD	Min	Max	95% Confidence interval	
							Lower bound	Upper Bound
	Overall	866	5.38	3.66	0	10	5.14	5.63
	Minus zero score students	669	6.97	2.50	1	10	6.78	7.16
Grade								
Grade 2	Overall	433	4.14	3.66	0	10	3.79	4.48
	Minus zero score students	289	6.20	2.70	1	10	5.89	6.51
Grade 3	Overall	433	6.63	3.20	0	10	6.33	6.93
	Minus zero score students	380	7.56	2.15	1	10	7.34	7.77
Gender								
Boys	Overall	435	5.12	3.68	0	10	4.77	5.46
	Minus zero score students	327	6.81	2.56	1	10	6.53	7.08
Girls	Overall	431	5.65	3.61	0	10	5.31	5.99
	Minus zero score students	342	7.12	2.44	1	10	6.86	7.38

Sub-test 2 – Grapheme Sound Identification

Knowledge of how letters or graphemes (i.e., groups of letters smallest semantically distinguishing unit in a written language) correspond to sounds is another critical skill children must master to become successful readers. Letter-sound correspondences are typically taught through phonics-based approaches. In this sub-test, students were asked to provide the sounds of as many graphemes they could identify within a one-minute period. A full set of graphemes in the French language was listed in random order, 10 letter sounds to a row, for a total of 100 letter sounds.

Scores in sub-test 3 are defined as the number of correct graphemes identified per minute (CGPM). On average, students correctly read 19.1 grapheme sounds per minute, with 26.1 grapheme sounds attempted. Grapheme recognition showed significant improvements from an average of 13 graphemes recognized in Grade 2 to 25 at the end of Grade 3. Girls performed slightly better with an average of 21 CGPM versus 18 CGPM read by boys. The gender difference in performance is statistically significant only in Grade 2.

Table 11 – Sub-test 2 Grapheme Identification: Results by Grade and gender.

Subtest 2 -Number of graphemes identified per minute (CGPM)		N	Mean	SD	Min	Max	95% Confidence interval	
							Lower bound	Upper Bound
	Overall	866	19.09	15.86	0	88	18.04	20.15
	Minus zero score students	825	20.04	15.66	1	88	18.97	21.11
Grade								
Grade 2	Overall	433	12.97	11.15	0	71	11.92	14.02
	Minus zero score students	399	14.08	10.93	1	71	13.00	15.15
Grade 3	Overall	433	25.22	17.45	0	88	23.57	26.86
	Minus zero score students	426	25.63	17.28	1	88	23.99	27.27
Gender								
Boys	Overall	435	17.69	15.57	0	88	16.22	19.15
	Minus zero score students	411	18.72	15.40	1	88	17.23	20.21
Girls	Overall	431	20.52	16.05	0	81	19.00	22.03
	Minus zero score students	414	21.36	15.82	1	81	19.83	22.88

Sub-test 3 – Familiar Word Reading

Children who are able to read words that are familiar to them often do that by automatic recognition. Automated word recognition in reading allows a beginning reader to ‘read’ a familiar word not by its letters, but as a whole. For this assessment, high-frequency familiar words were selected from early grade reading materials, story books, and school visits to primary schools to ask teachers in Grades 1 to 3 about the

vocabulary used during their lessons. Words were arranged horizontally, in good separation from each other, written in a familiar (lower case) font, comprising 10 rows, five familiar words per line.

Scores in sub-test 3 are defined as the number of correct familiar words read per minute (CFWPM). VANEGRA French scores in sub-test 3 showed a weak automaticity in word reading, an ability closely associated to word reading in the oral reading passage and ultimately, comprehension. Students read an average of 10.9 familiar words per minute correctly, with 16.5 words attempted. Yet, familiar word reading observed the greatest improvement across sub-tests and grades in the assessment: moving from Grade 1 to 2, the percentage of zero-scorers decreases from 84% to 19% (65% reduction in the number of zero-score students from Grade 1 to Grade 2), to only 5% of Grade 3 students scored zero (an additional reduction of 14%). Girls performed better with an average of 12.2 words per minute, while boys read an average of 9.6 words. Grade differences by gender are statistically significant for Grades 2 and 3.

Table 12 – Sub-test 3 Familiar Word Reading: Results by Grade and Gender

Subtest 3 -Number of correct familiar words read per minute (CFWPM)		N	Mean	SD	Min	Max	95% Confidence interval	
							Lower bound	Upper Bound
	Overall	865	10.91	11.39	0	57.69231	10.15	11.66
	Minus zero score students	758	12.44	11.36	1	57.69231	11.64	13.25
Grade								
Grade 2	Overall	432	5.62	6.23	0	47	5.03	6.21
	Minus zero score students	348	6.98	6.22	1	47	6.32	7.63
Grade 3	Overall	433	16.18	12.85	0	57.69231	14.97	17.39
	Minus zero score students	410	17.09	12.61	1	57.69231	15.86	18.31
Gender								
Boys	Overall	435	9.58	10.51	0	57.69231	8.59	10.57
	Minus zero score students	367	11.36	10.52	1	57.69231	10.28	12.43
Girls	Overall	430	12.24	12.09	0	55.4717	11.10	13.39
	Minus zero score students	391	13.46	12.01	1	55.4717	12.27	14.66

Sub-test 4 – Invented Word Reading

Invented word reading is a measure of decoding ability. Many children in the early grades learn to memorize or recognize by sight a broad range of words. Children's decoding skills are often assessed using reading lists of invented words that cannot typically be read by sight recognition. This allows for a purer measure of word recognition and decoding skills than does reading comprehension paragraphs, as children are unable to guess the next word from the context. This sub-test included 50 one- and two-syllable invented words, five per row, with the vowel-consonant patterns of letters typical in the French language.

Scores in sub-test 4 are calculated as the number of correct invented words read per minute (CIWPM). Students read an average of 8.4 familiar words per minute correctly, with 13.6 words attempted. Grade 2 students decoded almost 4 words (48% reduction in the number of zero-score students from Grade 1 to Grade 2), and Grade 3 students decoded an average of 13 correct invented words per minute (an additional reduction of 30% in the share of zero-score students). Results suggest that while students are able to consolidate familiar word reading skills in Grade 2, the ability to decode is one they become familiar with later in Grade 3. Girls decoded more invented words per minute than boys (9.2 CFWPM versus 7.5 CFWPM), and grade differences by gender are statistically significant only for Grade 3.

Table 13 – Sub-test 4 Invented Word Reading: Results by Grade and Gender

Subtest 4 -Number of correct invented words read per minute (CIWPM)		N	Mean	SD	Min	Max	95% Confidence interval	
							Lower bound	Upper Bound
	Overall	865	8.35	10.88	0	76.92308	7.63	9.08
	Minus zero score students	572	12.63	11.17	1	76.92308	11.72	13.55
Grade								
Grade 2	Overall	432	3.62	5.58	0	29	3.09	4.14
	Minus zero score students	221	7.07	6.04	1	29	6.27	7.86
Grade 3	Overall	433	13.08	12.68	0	76.92308	11.88	14.27
	Minus zero score students	351	16.13	12.20	1	76.92308	14.86	17.41
Gender								
Boys	Overall	435	7.46	9.79	0	55.4717	6.54	8.38
	Minus zero score students	275	11.80	10.02	1	55.4717	10.62	12.99
Girls	Overall	430	9.25	11.82	0	76.92308	8.14	10.37
	Minus zero score students	297	13.40	12.11	1	76.92308	12.02	14.78

Sub-test 5a – Oral Passage Reading

Oral reading fluency is a measure of overall reading competence: the ability to translate letters into sounds, unify sounds into words, process connections, relate text to meaning, and make inferences to fill in missing information (Hasbrouck & Tindal, 2006). As skilled readers translate text into spoken language, they combine these tasks in a seemingly effortless manner. Because oral reading fluency captures this complex process, it can be used to characterize overall reading skill. Poor performance on a reading comprehension tool would suggest that the student had trouble with decoding, with reading fluently enough to comprehend, or with vocabulary.

Sub-test 5a produced a 58-word narrative passage from children's reading materials. The narrative passage began where the characters are introduced, a middle section containing some dilemma, and an ending section with an action resolving the dilemma. The passage provided the basis for the comprehension questions

presented in sub-test 5b. Scores in sub-test 5a are calculated as the number of correct words read per minute in the oral reading passage (Table 8). On average, students were able to read 18.6 correct words in a connected text per minute (CWCPM). Students attempted 22.5 words on average. Looking at the proportion of zero-score students in the sub-test, results suggest Francophone students begin consolidating their reading fluency skills by the end of Grade 2 (a 55% reduction in the number of zero-score students) with the best performance at the end of Grade 3 (an additional 18% reduction). This finding is also observed in terms of scores: at the end of Grade 1, students were able to read only 1 correct word of the oral reading passage in a minute. The average increases to 8 at the end of Grade 2 and 29 at the end of Grade 3. Girls outperformed boys in reading a narrative passage: Boys read an average of 16.4 words per minute. Girls read an average of 20.7 words per minute. Gender differences are statistically significant only in Grades 2 and 3.

Table 14 – Sub-test 5a Oral Passage Reading: Results by Grade and Gender

Subtest 5a -Number of correct words read in a connected text per minute (CWCPM)		N	Mean	SD	Min	Max	95% Confidence interval	
							Lower bound	Upper Bound
	Overall	865	18.58	23.64	0	201.1765	17.01	20.16
	Minus zero score students	724	22.20	24.24	1	201.1765	20.43	23.97
Grade								
Grade 2	Overall	432	7.93	10.26	0	74.04256	6.96	8.90
	Minus zero score students	322	10.64	10.61	1	74.04256	9.48	11.80
Grade 3	Overall	433	29.21	28.04	0	201.1765	26.57	31.85
	Minus zero score students	402	31.46	27.86	1	201.1765	28.74	34.18
Gender								
Boys	Overall	435	16.42	22.48	0	201.1765	14.31	18.53
	Minus zero score students	351	20.35	23.38	1	201.1765	17.91	22.80
Girls	Overall	430	20.77	24.60	0	152.7273	18.44	23.09
	Minus zero score students	373	23.94	24.93	1	152.7273	21.41	26.47

Sub-test 5b – Reading Comprehension

Average reading comprehension levels in sub-test 5b are largely explained by the performance in the oral reading passage. Without sufficient skills to read into the text, students focus on reading words one-by-one, sometimes letter-by-letter. By the time they reach the end of the text, students have already forgotten what they read first. Scores in sub-test 5b are calculated as the percentage of correct answers in the sub-test -5 questions in total. The number of questions a student received depended on the number of words read in sub-test 5a, so that students had to respond only to questions related to the segment of the text they read. The early-stop marker was placed at 9 words – i.e. first row in the text - so that those unable to correctly read any of the first 9 words received a zero-score in this task. Students that read the first 9 words with at least one word read correctly were allowed to continue with the exercise. Those reading between 9 and 21 words

received 1 question. Those reading between 22 and 26 received 2 questions, and those reading between 27 and 34 received 3 reading comprehension questions. Students reading between 35 and 47 received 4 questions and those reading above 47 words were asked all 5 reading comprehension questions.

On average, students answered 20% of the reading comprehension questions correctly, with the average student attempting 1 reading comprehension question. Excluding zero-score students (409 students), the average scores increase to 44%, which suggests that students who completed the exercise, on average, understood slightly less than half of the text they read. 68% of students scored zero on this section largely as a result of their reading performance in the oral reading passage. Looking at the proportion of zero-score students, results suggest even though students start to consolidate fluency in reading as early as Grade 2, this skill begins to consolidate later in Grade 3 (96% of Grade 1 students scored zero, followed by 75% in Grade 2 and 36% in Grade 3). In terms of the percentage of reading comprehension by grade, in Grade 2, the average student understands 8% and by Grade 3, the average student understands about 32% of the text. Boys and girls performed similarly in reading comprehension: boys scored an average of 18% versus 22% by girls; both attempting to answer an average of 1 question out of 5. Girls slightly outperformed boys in Grades 2 and 3 but these differences are not statistically significant.

Table 15 – Sub-test 5b Reading Comprehension: Results by Grade and Gender

Subtest 5b -Percentage of overall reading comprehension in a connected text		N	Mean	SD	Min	Max	95% Confidence interval	
							Lower bound	Upper Bound
	Overall	866	0.20	0.28	0	1	0.18	0.22
	Minus zero score students	392	0.44	0.25	0.2	1	0.41	0.46
Grade								
Grade 2	Overall	433	0.08	0.16	0	1	0.06	0.09
	Minus zero score students	109	0.31	0.17	0.2	1	0.27	0.34
Grade 3	Overall	433	0.32	0.31	0	1	0.29	0.35
	Minus zero score students	283	0.49	0.26	0.2	1	0.46	0.52
Gender								
Boys	Overall	435	0.18	0.27	0	1	0.15	0.20
	Minus zero score students	182	0.43	0.25	0.2	1	0.39	0.47
Girls	Overall	431	0.22	0.28	0	1	0.19	0.24
	Minus zero score students	210	0.44	0.25	0.2	1	0.41	0.48

A closer look at differences in comprehension between students who were asked to answer questions based on the oral reading passage show important differences in the share of students in each category and the average comprehension based on questions asked. Table 16 shows the distribution of correct answers depending on the number of questions asked.

As seen in column “0”, 474 Grade 2 and 3 students were not given any questions – zero questions asked – because they could not read correctly any of the first 9 words in the passage. Of the 159 students that correctly read between 1 – 9 words in the first segment of the oral reading passage, 54% (86 students) were able to answer the question correctly. On average, the more fluent in reading students are, i.e. those that received 3 or more questions; the better their comprehension, as they are able to provide correct answers to most, if not all, the questions received. The proportion of students in the 0 and 1 correct answers (rows) is zero for columns 4 and 5. Among the most fluent (column 5), 100% of Grade 2 and 3 students are able to understand all questions they are asked.

Table 16 - Percentage of Correct Answers in Sub-test 5b

# questions correct	# questions asked						Total
	0	1	2	3	4	5	
0	474	73	1	0	0	0	548
	1.000	0.459	0.010	0.000	0.000	0.000	0.633
1		86	33	5	0	0	124
		0.541	0.333	0.078	0.000	0.000	0.143
2			65	29	0	0	94
			0.657	0.453	0.000	0.000	0.109
3				30	21	0	51
				0.469	0.477	0.000	0.059
4					23	0	23
					0.523	0.000	0.027
5						26	26
						1.000	0.030
Total	474	159	99	64	44	26	866

Note: Percentage values reflect column percentages.

Sub-test 6 – Listening Comprehension

Assessment of listening comprehension does not involve any reading from the student but involves the processing of oral language information only. Testing of listening comprehension separately from reading comprehension is important due to the different ways in which learners approach, process, and respond to text. More importantly, listening comprehension is an important contributor to reading comprehension, which tends to increase with reading acquisition.

The narrative passage in VANEGRA's sub-test 6 was 37 words long and narrated an activity or event familiar to Ni-Vanuatu children. Students then responded to oral comprehension questions – 5 in total. Scores in sub-test 6 are calculated as the number of correct answers in the sub-test. On average, students in the sample responded to 1.5 of the 5 questions correctly (Table 17). Excluding zero-score students, the average

student correctly answered 2.3 questions. Students in Grade 3 performed the best with an average of 1.8 correct answers (just under 40% average comprehension), followed by Grade 2 with 1.1 correct answers (just over 20% average comprehension). There were no statistically significant differences in the performance of boys and girls on listening comprehension. The performance of boys and girls on listening comprehension is similar, and differences in performance in each grade are not significant.

Table 17- Sub-test 6 Listening Comprehension: Results by Grade and Gender

Subtest 6 -Number of listening comprehension questions answered correctly		N	Mean	SD	Min	Max	95% Confidence interval	
							Lower bound	Upper Bound
	Overall	866	1.46	1.45	0	5	1.36	1.55
	Minus zero score students	556	2.27	1.20	1	5	2.17	2.37
Grade								
Grade 2	Overall	433	1.11	1.32	0	5	0.99	1.23
	Minus zero score students	235	2.05	1.13	1	5	1.90	2.19
Grade 3	Overall	433	1.80	1.50	0	5	1.66	1.95
	Minus zero score students	321	2.43	1.23	1	5	2.30	2.57
Gender								
Boys	Overall	435	1.40	1.44	0	5	1.26	1.53
	Minus zero score students	271	2.24	1.20	1	5	2.10	2.39
Girls	Overall	431	1.52	1.47	0	5	1.38	1.66
	Minus zero score students	285	2.29	1.21	1	5	2.15	2.44

Sub-test 7 – Dictation

Dictation assessment is frequently used by teachers to test both oral comprehension and writing skills. Students' ability to hear sounds and correctly write the letters and words corresponding to the sounds they hear demonstrates their success with the alphabetic principle. The dictation sentence in the VANEGRA French was 11 words long ("*Je vais au jardin pour planter un taro et un bananier*"). Students received a weighted score capturing the accuracy for vowel and consonant sounds, spelling, spacing and direction of text, capitalization, and punctuation. In addition, we estimated the number of letters and full words written, the percentage of those that were correctly written, and the number of pictograms¹² used by children to represent the sentence given.

¹² A pictogram is a pictorial representation of words used in Vanuatu to "smooth" student's transition into alphabetic-based writing. Although not a standardized, there is a basic set of pictograms commonly used to represent the most common words and verbs used in the country.

Scores in sub-test 7 are calculated using weights¹³ to create a variable with a maximum score of 100%. For easier interpretation of writing scores, we converted students' raw dictation scores into a weighted average of their performance on each question. Each word for the spelling component received 10 points if answered correctly and 5 if the response was partially correct. Spacing and capitalization received 3 points each, while the correct direction and use of the full stop received 2 points each for a total of 100 points possible for the entire section. On average, students wrote 2.6 out of 8 items correctly, with a weighted score of 26 out of 100. As in all sub-tests, student performance in dictation was positive in terms of scores and overall progression. Students in Grade 3 performed the best with an average score of 3.2 out of 8 items (41% weighted score), followed by Grade 2 students with an average score 2 out of 8 items (25% weighted score). Girls outperformed boys on dictation, and this difference is statistically significant in Grades 2 and 3.

Table 18 - Sub-test 7 Dictation: Results by Grade and Gender

Subtest 7 - Score of overall early writing skills (spelling and basic conventions)		N	Mean	SD	Min	Max
	Overall	866	2.62	1.87	0	8
	Minus zero score students	751	3.02	1.68	1	8
Grade						
Grade 2	Overall	433	1.97	1.59	0	8
	Minus zero score students	350	2.44	1.41	1	8
Grade 3	Overall	433	3.26	1.90	0	8
	Minus zero score students	401	3.52	1.72	1	8
Gender						
Boys	Overall	435	2.37	1.84	0	8
	Minus zero score students	363	2.85	1.64	1	8
Girls	Overall	431	2.86	1.87	0	8
	Minus zero score students	388	3.18	1.69	1	8

Out of the 43 letters in the sentence, students were able to write an average of 23.5 letters, 23.2 of which were written correctly. Out of the 11 words in the sentence, students wrote an average of 6.7 full words, 4.1 of which were spelled correctly and about 2.6 phonetically. The proportion of students using pictograms was very low (about 0.17 words as a pictogram). Table 19 shows evidence of progression across grades in all of the items estimated: the number of correct letters and full words increases as students go from Grade 2 (17 correct letters and 3 correct full words written) to Grade 3 (30 correct letters and 6 correct full words).

¹³ Due to similarities in the components used in the VANEGRA instrument, the weights for this score follow the score used in the Guyana EGRA test.

Table 19 - Sub-test 7 Dictation: Number of letters and full words (total and correct) written by grade

	Grade 2		Grade 3		Total	
	Mean	SD	Mean	SD	Mean	SD
Number of letters written	17	14	30	14	23	15
Number of correct letters written	17	14	30	14	23	15
Number of full words written	5	4	8	4	7	4
Number of full correct words written	3	3	6	3	4	3
Number of words written phonetically	2	2	3	3	3	3
Number of words written as a pictogram	0	1	0	1	0	1

Boys wrote an average of 21.3 letters, 21 of them correctly; and girls wrote an average of 25.7 letters, 25.5 of them correct. Boys wrote an average of 6 full words, 3.6 correctly written. Girls write an average of 7.4 full words, with 4.7 correctly written. More girls wrote words phonetically. Boys and girls wrote less than 1 word as a pictogram on average.

Table 20 –Sub-test 7 Dictation: Number of letters and full words (total and correct) written by gender

	Boys		Girls	
	Mean	SD	Mean	SD
Number of letters written	21.333	15.622	25.689	14.141
Number of correct letters written	20.991	15.597	25.528	14.159
Number of full words written	5.979	4.455	7.414	3.894
Number of full correct words written	3.623	3.332	4.657	3.362
Number of words written phonetically	2.354	3.038	2.792	3.265
Number of words written as a pictogram	0.222	1.053	0.117	0.766

For the writing components assessed in the sub-test, the rate of student non-response is quite high, but the rate decreases as students progress from Grade 2 to 3. 26% of students in the sample (335 students) did not write anything at all, half of them in Grade 1. Excluding students who produced a blank dictation section, 15% correctly used capitalization, 43% used spacing correctly, 75% wrote in the right direction, and 7% correctly used the full stop (Figure 5).¹⁴

While half of the students acquired an understanding of the orientation to write as early as Grade 1 (50% correct answer), most of them (81%) had acquired this knowledge at the end of Grade 2. Spacing between words tends to consolidate later in Grade 3 (74%). The use of the full stop, on the other hand, appeared not to develop in most students across grades (Figure 6).¹⁵

¹⁴ This section excludes zero-score students and includes those few Grade 1 students who produced an answer.

¹⁵ During the pilot of the instrument, the team monitored that enumerators were not dictating the final point to students, as it is often the way teachers do during dictation lessons.

Figure 8– Distribution of student responses to the writing items (total sample)

Figure 9– Distribution of student responses to the writing items (per grade)

For the spelling component, students were marked based on their spelling of “au”, “planter”, “et” and “bananier”. Non-response is also high for this component, with the rate decreasing as students progress from Grade 1 to later grades. Excluding students who left every dictation question blank, 19% correctly spelled the word “au”, 3% correctly spelled the word “planter”, 28% correctly spelled the word “et” and 8% correctly spelled the word “bananier”. Performance in spelling items showed significant progression across grades, with the largest gains observed at the end of Grade 3 (Figures 7 and 8).

Figure 10– Distribution of student responses to spelling items (total sample)

Figure 11– Distribution of student responses to the writing items (per grade)

Differences in Performance by Grade and Gender

As previously stated, VANEGRA French results showed evidence of gender differences in some sub-tests in favor of girls, though the size and significance of the effect varies per skill tested. In order to identify the skills and the grades where gender differences take place, we explored performance differences by gender for each grade. This analysis pertains to Grades 2 and 3 only.

We observed that differences in performance by gender starts to appear in Grades 2 and 3. These differences suggest that girls step into word-level reading and oral reading fluency faster than boys, as observed in the how boy's performance lag as grade increases.

Moreover, in Grade 3, girls consolidate their advantage in reading fluency, writing and even decoding skills. Figures 9 to 11 below present average scores in VANEGRA French in three important sub-tests. Further exploration of the effect of gender on the acquisition of early literacy skills takes place in Chapter 4.

Familiar Word Reading

Girls read more familiar words per minute than boys, and this difference is statistically significant for Grades 2 and 3. Girls read an average of 12.2 familiar words per minute, they attempted to read 17.7. Boys read an average of 9.6 correct words per minute; they attempted to read 15.2. In Grade 2, girls read an average of 1.5 familiar words more than boys and in Grade 3, girls read an additional 4 familiar words per minute more than boys. The differences in Grades 2 and 3 are statistically significant, suggesting that girls transition into word reading skills faster than boys. (See Table 12)

Figure 12– Differences in performance between boys and girls by grade, measured by the number of correct familiar words read per minute (CFWPM)

Oral Passage Reading

Girls outperformed boys in reading a narrative passage. Overall, boys read an average of 16.4 words per minute; they attempted 21.1. Girls read an average of 20.7 words per minute; they attempted 24. This is significant in Grades 2 and 3. In Grade 2, girls read almost 2 words more than boys in the oral reading passage and girls in Grade 3 read about 7 words per minute more than boys in the same grade. These results suggest girls develop fluency in reading faster than boys.

Figure 13– Differences in performance between boys and girls by grade, measured by the number of correct words read in a connected text per minute (CWCPM)

Dictation (Weighted score)

Gender differences in Grades 2 and 3 are statistically significant in favor of girls. In Grade 2, girls read almost 2 words more than boys in the oral reading passage and girls in Grade 3 read about 7 words per minute more than boys in the same grade. Boys, on average, obtained a weighted score of 29% and girls scored 36%. These results suggest that girls acquire writing skills faster than boys do in Grades 2 and 3.

Figure 14– Differences in performance between boys and girls in dictation by grade, as a weighted score

Summary of Assessment Results

VANEGRA French results show reading gains across the three grades tested. As Francophone students move from Grade 1 to 3, they improve their competence in all skills tested. Nonetheless, the average rate of progress is slow in the development of word-level reading skills, oral reading fluency and reading comprehension. Looking at differences in performance between boys and girls, assessment results showed that boys and girls perform similarly in Grade 1, but girls outperform boys in word-level skills at statistically significant levels.

Chapter 4: Performance in Oral Reading Fluency and Reading Comprehension

As stated before, oral reading fluency is a measure of overall reading competence: the ability to translate letters into sounds, unify sounds into words, process connections, relate text to meaning, and make inferences to fill in missing information (Hasbruck and Tindal, idem; Fuschs et al, 2001). This is not to say, however, that oral reading fluency is the only predictor - or the most important - of reading comprehension among readers. Because oral reading fluency captures this complex process and it is strongly associated with both listening and reading comprehension, it is frequently used as a marker of overall reading ability.

Before VANEGRA, oral reading fluency had not been measured in Vanuatu. Thus, in order to inform the establishment of reference standards for early grade reading under VERM, we sought to identify the oral reading fluency levels where Ni-Vanuatu beginning readers demonstrate high reading comprehension levels. VANEGRA French results showed evidence of a positive correlation between oral reading fluency– sub-test 5a - and reading comprehension – sub-test 5b -: better fluency in reading appears to contribute to better comprehension in reading, although this relationship is not linear. In Figure 12 below, average reading comprehension levels of 60% and above start at a minimum fluency level of 35 CWCPM.

Figure 15 –Average Scores in Oral Reading Fluency (sub-test 5a) and Reading Comprehension (sub-test 5b)

Using a reference standard of 45 CWCPM to classify students as “fluent readers”, students are able to read between 46 and 152 correct words in a connected text per minute (CWCPM) with an average fluency of 68.8 CWPM (see Figure 13 below). At this level, 42% of these fluent students were clustered around top comprehension levels – i.e. correct answers to 4 and 5 questions received.

Figure 16 – Average Reading Comprehension Levels in Fluent Students (N=110)

Using a reference standard of 45 CWCPM to classify students as “fluent readers”, fluent students account for 13% of the sample. Differences by grade suggest fluency in reading emerges at the end of Grade 3 but only among 24% of the Grade 3 students. Of the 110 fluent students, 92% were in Grade 3, 8% in Grade 2. In the sample of Grades 2 and 3, 16% of the girls and only 10% of the boys could be considered fluent in reading. By the end of Grade 3, 29% of girls in Grade 3 reached the fluency standard versus 18% of the boys in the same grade.

Differences between fluent and less than fluent students are considerable in both accuracy and fluency. As expected, important differences in both fluency and reading comprehension emerge between these two groups. While less-than-fluent students – i.e. those reading between 0 and 44 CWCPM - attempted to read about 17.6 words in a minute and got 11.2 of them correct, for an oral reading fluency average of 11.2 CWCPM, fluent students attempted to read 56 words and got 55 words correct (98% accuracy), for an oral reading fluency average of 68.8 CWCPM – a difference of around 58 CWCPM in the oral reading passage between the two groups. In terms of average reading comprehension, less-than-fluent students showed a

fluency level that allowed them to receive only one question, reaching an average comprehension of 13%. Conversely, fluent students received all questions and were able to understand about 64% of the text.

Table 21- Distribution of Students by Fluency

	Less than Fluent Students		Fluent Students			
	Reading 0 to 44 words per minute		>45 correct words per minute			
	Frequency	Proportion	Frequency	Proportion	SD	N
Overall	755	0.87	110	0.13	0.011	866
Grade2	424	0.98	9	0.02	0.007	433
Grade3	331	0.76	101	0.24	0.020	433
Boys	391	0.90	43	0.10	0.014	435
Girls	363	0.84	67	0.16	0.018	431
Boys Grade 2	212	0.98	4	0.02	0.009	217
Boys Grade 3	178	0.82	39	0.18	0.026	218
Girls Grade 2	211	0.98	4	0.02	0.010	216
Girls Grade 3	151	0.71	63	0.29	0.031	215

Table 22 - Average fluency, accuracy and reading comprehension levels, by condition of fluency

	Less than Fluent (N=1,152)		Fluent (N=130)	
	Mean	sd	mean	sd
Overall: > 45 words	0.872	0.012	0.128	0.012
CWCPM	11.272	11.316	68.752	25.205
Words attempted	17.646	9.864	55.991	3.832
Words read (raw score)	11.237	11.311	54.582	4.261
Reading comprehension%	0.13	0.202	0.63	0.2766

In summary, there is much variation in reading fluency and comprehension among Ni-Vanuatu Francophone students. Greater oral reading fluency is associated with higher levels of reading comprehension, with fluent students— 13% of the sample of Grade 2 and 3 students able to read at least 45 correct words per minute – reaching an average fluency of around 69 CWCPM, which is associated with an average understanding of 63% of the text they read. By contrast, less-than-fluent students – i.e. those reading between 0 and 44 CWCPM - read at a fluency level of CWCPM with an average understanding of only 13% of the text they read. The results suggest that reading fluency differs across both grades and gender. In particular, the results provide evidence that schooling increases fluency levels, as students in Grade 3 demonstrated the highest fluency levels. Girls also exhibited greater reading fluency than boys, especially by the end of Grade 3.

Chapter 5: Analysis of Student Factors Associated with Better Reading Outcomes

We sought to explore the association between students' characteristics and performance using data collected in the student questionnaire. Students were asked a series of questions on their background such as their parents' literacy, whether they attended kindergarten, and whether they had books for school and other books. Table 23 gives the characteristics of the entire sample.

Table 23 - Characteristics of students in the sample along several student and family factors

	Mean	SD	N
Age of students in the sample (in years)	8	1.7	1,291
Student speaks French at home	26%	44%	1,236
Student speaks Bislama or Vernacular at home	92%	27%	1,262
Student owns the school textbook	68%	47%	1,250
Student has a teacher that reads aloud to him/her	92%	28%	1,259
Student has reading materials at home:	40%	49%	1,212
In English	4%	20%	1,293
In French	23%	42%	1,293
In Bislama	7%	26%	1,293
In other language	1%	7%	1,293
Student has a literate family member :	88%	33%	1,254
Student has a literate mother	55%	50%	1,293
Student has a literate father	52%	50%	1,293
Student has both parents literate	43%	49%	1,293
Student has at least one literate sibling	50%	50%	1,293
Student has other literate family member	9%	28%	1,293
Student does homework and receives help from a family member:	83%	38%	1,238
From his/her mother	41%	49%	1,033
From his/her father	18%	38%	1,033
From his/her sibling	27%	44%	1,033
From another relative	7%	26%	1,033
Someone has a family member that reads with him/her at home	72%	45%	1,237
Mother	4%	20%	891
Father	36%	48%	891
Sibling	15%	36%	891
Other	42%	49%	891
Student attended kindergarten before Grade 1	90%	30%	1,259
Student was absent from school for more than 1 week	53%	50%	1,163
Student is in overage (as a proxy for repetition)	43%	50%	1,293

Note: Missing data explains cases where N is less than 1,293.

In order to determine which characteristics have a significant effect on acquisition of literacy skills, multiple Ordinary Least Squares (OLS) regressions were performed on the scores of each subtest for the subset of Grades 2 and 3. Tables 24, 25, 26 and 27 give the results from each of the eight regressions.

Grade progression was a significant determinant in the acquisition of literacy skills with students in Grade 3 expected to read close to 18 CWPM more than students in Grade 2 on average. The variable was significant and positive for all subtests.

Gender was not by itself significant, however, there was a significant gender interaction with Grade which suggests that girls in Grade 3 are expected to read 5 CWPM more than their male counterparts. This variable was only significant for oral reading fluency. Gender also played a role with family literacy, which will be discussed below.

The language spoken at home was largely insignificant except that speaking Bislama at home had a positive relationship both with oral reading fluency and reading comprehension, with students who spoke the language at home expected to read 3.7 CWPM more than those who did not and score 7% better in reading comprehension on average.

Owning the textbook was not a significant determinant of reading acquisition in this model, and having a teacher who the student reported as reading aloud actually had a negative, significant association with phoneme recognition and recognizing familiar words. Further examination of classroom practices or a more complex model may be required to explain such counterintuitive findings.

Having books available at home was a positive and significant factor in all subtests except initial phoneme recognition (subtest 1). Students with books available at home are expected to read 5.8 CWPM more, and score between 5.7 and 9% more on the comprehension subtests.

Familial literacy had a complex relationship with the development of reading skills. Maternal literacy was insignificant in all subtests, except initial phoneme recognition alone. However, when interacted with gender, it indicates that girls benefit significantly from maternal literacy. Girls with a mother who can read are expected to read 8.9 CWPM more and score between 8.7 and 10% more on the comprehension subtests. The model suggests that paternal literacy had a significant positive effect on phoneme recognition, familiar word recognition, reading and listening comprehension and a negative effect on oral reading fluency. Interacted with gender, the model suggests that girls benefit less from having a literate father than boys only in phoneme recognition. Sibling and the literacy status of other family members were insignificant except for reading comprehension where girls benefitted from a sibling who was literate more than boys did.

Students who requested the test format in the Bislamar language tended to have significantly lower scores across a range of subtests. This may indicate a students' recognition of their lack of facility with the French language. Likewise, a student who answered the dictation subtest partly in pictograms is expected to have a significantly lower score in reading comprehension, possibly for the same reason. Causation should not be assumed in these particular variables.

Table 24 Multiple Regression Results: Part A

	Sub-test 1 Number of initial sounds	Sub-test 2 CSPM	Sub-test 3 CFWPM	Sub-test 4 CIWPM
Gender	0.3767	1.1262	-0.3145	-1.6538
	0.4960	0.5560	0.8000	0.1510
Grade 3	2.5305	12.2484	8.9018	8.3272
	0.0000	0.0000	0.0000	0.0000
Girl in Grade 3	0.1097	0.0301	2.3347	1.8346
	0.8220	0.9890	0.0920	0.1670
English (French) at Home	-0.0752	1.0163	-0.0839	0.0655
	0.7860	0.3980	0.9170	0.9330
Bislama at Home	0.1620	1.5701	0.8137	0.7435
	0.6970	0.2970	0.4300	0.4280
Owns Textbook	0.4328	1.8138	0.7348	0.7168
	0.1390	0.1220	0.3360	0.3260
Teacher Reads Aloud	-0.0542	-3.6717	-1.9344	-0.4474
	0.9180	0.0570	0.0590	0.6440
Books available at home	0.1986	4.3315	3.1173	2.8135
	0.4460	0.0000	0.0000	0.0000
Mother Literate	1.0917	0.6993	-0.8503	-0.6557
	0.0080	0.6850	0.4650	0.5400
Father Literate	-0.3460	4.8466	2.0951	1.5983
	0.3920	0.0040	0.0680	0.1390
Sibling Literate	0.4333	0.0469	0.6041	0.3934
	0.2310	0.9740	0.4940	0.6390
Other family member literate	0.9158	3.2554	-0.5283	0.5483
	0.1560	0.2780	0.7380	0.7430
Interaction: Mother literate, female	0.2654	4.3245	3.5975	4.3657
	0.6420	0.2780	0.0350	0.0030
Interaction: Father literate, female	0.4785	-4.1675	-1.0004	-0.6855
	0.4050	0.0900	0.5480	0.6400
Interaction: Sibling literate, female	-0.6245	1.1781	-0.2436	0.0804
	0.2090	0.5550	0.8570	0.9490
Interaction: Other family member literate, female	-1.2667	3.4145	2.1897	2.0618
	0.1760	0.4000	0.3180	0.3980
Test format: Bisclamar	-0.3299	-3.0373	-1.3202	-1.2700
	0.2360	0.0030	0.0640	0.0540

Table 25 OLS Multiple Regression Results: Part B

	Sub-test 5a	Sub-test 5b	Sub-test 6	Sub-test 7
	CWCPM	RCOMP (%)	LIST COMP (%)	DICT (weighted score)
Gender	-2.1189 0.3680	-0.0425 0.1960	0.0457 0.2500	0.2937 0.2580
Grade 3	17.9717 0.0000	0.2290 0.0000	0.1589 0.0000	1.1657 0.0000
Girl in Grade 3	5.0090 0.0950	0.0106 0.7660	-0.0461 0.2540	-0.0004 0.9990
English (French) at Home	0.1408 0.9310	0.0025 0.9030	-0.0128 0.5820	0.1168 0.4200
Bislama at Home	3.6549 0.0750	0.0711 0.0040	0.0156 0.6780	0.0454 0.8340
Owns Textbook	0.3500 0.8420	0.0100 0.6060	-0.0344 0.1530	0.1326 0.3690
Teacher Reads Aloud	-0.7292 0.6920	-0.0086 0.7120	0.0412 0.2950	-0.1688 0.4460
Books available at home	5.7789 0.0000	0.0574 0.0030	0.0890 0.0000	0.3667 0.0070
Mother Literate	-3.4875 0.2220	-0.0330 0.2710	0.0301 0.3890	-0.2006 0.3000
Father Literate	-3.4875 0.0730	0.0650 0.0230	0.0982 0.0040	0.2903 0.1410
Sibling Literate	-0.9148 0.6510	-0.0250 0.2860	0.0129 0.6420	-0.0132 0.9400
Other family member literate	-0.7273 0.8290	0.0203 0.7180	0.0728 0.2840	0.0116 0.9740
Interaction: Mother literate, female	8.9044 0.0280	0.1074 0.0150	0.0872 0.0840	0.5281 0.0770
Interaction: Father literate, female	-3.0958 0.4300	-0.0398 0.3580	-0.0634 0.2000	-0.2695 0.3740
Interaction: Sibling literate, female	0.9190 0.7530	0.0573 0.0950	-0.0290 0.4690	-0.0449 0.8560
Interaction: Other family member literate, female	0.4441 0.9200	-0.0354 0.6130	-0.0645 0.4160	-0.0190 0.9640
Test format: Bisclamar	-1.4186 0.3140	-0.0088 0.6320	-0.0025 0.9120	-0.3236 0.0150

Table 26 Multiple Regression Results: Part C

	Sub-test 1	Sub-test 2	Sub-test 3	Sub-test 4
	Number of initial sounds	CSPM	CFWPM	CIWPM
Does Homework	0.1272	0.8893	0.3362	0.0883
	0.7630	0.5470	0.6900	0.9150
Reads At Home	0.2822	-0.5514	0.2469	-0.4827
	0.3680	0.6330	0.7480	0.5020
Attended Kindergarten	0.4650	1.0570	0.9624	0.2795
	0.2380	0.5000	0.3850	0.7950
Absent >1 Week	-0.6985	-3.9384	-2.1214	-1.7787
	0.0050	0.0000	0.0010	0.0050
Answered in Pictographs	0.0601	-0.2874	-0.2567	-0.0365
	0.6500	0.6550	0.6490	0.9470
Constant	2.4593	8.5804	3.4495	1.7424
	0.0010	0.0010	0.0290	0.2260
R ²	0.1954	0.2645	0.2990	0.2763
N	860.0000	860.0000	860.0000	860.0000
F statistic	9.7400	10.3900	13.8200	12.2300
P-value	0.0000	0.0000	0.0000	0.0000
Test for Normality of Residuals				
Shapiro-Wilkes	10.0610	7.9890	9.1940	9.3430
P-value	0.0000	0.0000	0.0000	0.0000

Doing homework and reading at home were both insignificant across all subtests in this model. Attending kindergarten was also insignificant for all subtests except listening comprehension and dictation where it had a positive effect. Absenteeism of more than 1 week had a negative, significant effect on all subtests.

Overall, student-specific factors such as Grade, familial literacy and socio-economic factors such as the presence of books at home had an impact on the acquisition of reading skills.

Table 27 Multiple Regression Results Part D

	Sub-test 5a	Sub-test 5b	Sub-test 6	Sub-test 7
	CWCPM	RCOMP (%)	LIST COMP (%)	DICT (weighted score)
Does Homework	1.0022	-0.0040	0.0265	0.2046
	0.5430	0.8560	0.3520	0.2980
Reads At Home	0.1375	0.0216	0.0285	-0.0008
	0.9320	0.2770	0.2210	0.9960
Attended Kindergarten	1.5940	0.0047	0.0497	0.3119
	0.5040	0.8580	0.0680	0.0920
Absent >1 Week	-4.1374	-0.0683	-0.0350	-0.2218
	0.0020	0.0000	0.0830	0.0700
Answered in Pictographs	-0.1010	-0.0142	0.0085	-0.0374
	0.9300	0.0020	0.3670	0.4850
Constant	1.5602	-0.0055	-0.0055	1.2803
	0.6040	0.8830	0.9190	0.0000
R^2	0.2669	0.2636	0.1658	0.1747
N	860.0000	860.0000	860.0000	860.0000
F statistic	12.1600	10.6100	7.9200	8.0500
P-value	0.0000	0.0000	0.0000	0.0000
Test for Normality of Residuals				
Shapiro-Wilkes	5.3330	10.0460	10.0410	10.0770
P-value	0.0000	0.0000	0.0000	0.0000

Chapter 6: Analysis of Teacher Factors Associated with Better Reading Outcomes

We sought to explore the association between teacher characteristics –e.g., years of experience, professional qualification, in-service training, etc. and student reading outcomes using data collected in the teacher questionnaire. Table 28 below summarizes the profile of teachers in the VANEGRA French sample from Grades 1-3.

Table 28 – Profile of Francophone Teachers in VANEGRA

Teacher factor	Mean	SD	N
Age (in years)	37	10	105
Percentage of teachers that hold a Certificate of Primary Teaching (0=no; 1=yes)	95%	21%	106
Teachers by type of professional qualification:			
None	2%	14%	108
Certificate of Primary Education	87%	34%	108
Certificate of Education	7%	26%	108
Other	0%	0%	108
Years of experience (in total)	16	12	107
Years of experience (as certified teacher)	12	10	91
Percentage that received in-service training last year (0=no; 1=yes)	26%	44%	102
Percentage that received in-service reading training in last 2 years (0=no; 1=yes)	25%	44%	102
Average total number of days spent in training	6	5	24
Percentage of teachers that work in a school with library (0=no; 1=yes)	52%	50%	107
How often does the teacher use it?			
Rarely	19%	40%	108
Half the time	8%	28%	108
Most of the time	8%	28%	108
Every lesson	4%	19%	108
Percentage of teachers that supervise students using the library (0=no; 1=yes)	91%	29%	43
Percentage of teachers that have a corner library (0=no; 1=yes)	78%	42%	105
Percentage of teachers that work in a school with a functioning PTA (0=no; 1=yes)	53%	50%	86
Percentage of teachers that meet with the parents of his/her students (0=no; 1=yes)	69%	47%	106
Once per term or less	58%	50%	108
Twice	6%	25%	108
Three times	2%	14%	108
Percentage of teachers that have the recommended Reading Text (0=no; 1=yes)	51%	50%	102
How often do you use it?			
Rarely	4%	19%	108
Half the time	7%	26%	108

Teacher factor	Mean	SD	N
Most of the time	19%	39%	108
Every lesson	16%	37%	108
How useful do you find it?			
Not very useful	2%	14%	108
Moderately useful	12%	33%	108
Very useful	31%	46%	108
Percentage of teachers that have the teacher guide for reading instruction (0=no; 1=yes)	57%	50%	105
How useful do you find it?			
Not very useful	4%	19%	108
Moderately useful	17%	37%	108
Very useful	35%	48%	108

Most of the teachers in the sample are certified, experienced teachers with an average of 16 years teaching experience, and 12 years of experience as a certified teacher. 26% of teachers in the sample reported participating last year in some form of in-service training, with 25% of the teachers reporting they had participated in in-service training for reading in the last 2 years. The average number of days for the training workshops was 6 days. 52% reported having a school library in their schools and 80% of those reported using it; less than 10% reported using it half or most of the time. 78% of teachers reported having a learning corner. 53% of the teachers surveyed reported having a PTA, with 69% having parent meetings, most of these (58%) at least once per term. 51% of teachers reported having the recommended reading texts but only 19% reported using them most of the time.

Effect of Teacher Characteristics on Student Performance

In order to explore which teacher characteristics and teaching activities impact on student performance, we performed individual z-tests on subtest results for Grades 2 and 3. These tests require several stringent assumptions, but can determine the statistical significance of characteristics. The commonly used t-tests were also performed, but for reasons of brevity are not reported here. They are reported in Annex 1.¹⁶ The following analysis concentrates on comparisons between groups for the subtests on oral reading fluency, comprehension and dictation. Where a teaching activity, meeting or evaluation occurs on a regular basis, the two most infrequent groups are compared: generally “never” and “1-2 times per week” for teaching activities and “never” and “once per term” for meetings and evaluations. Exceptions to this rule will be noted.

Table 29 gives a summary of these tests, full results are available in Annex 1. Overall, compared to no certification, holding a Certificate in Primary Teaching as a highest qualification had a mixed effect. Insignificant for oral reading fluency and reading comprehension, it had a significant positive effect on listening comprehension scores, but a negative and significant effect on dictation scores. Inservice and training in

¹⁶ The commonly-used t-test requires fewer assumptions than the z-test and is less likely to return a result indicating that the variable is significant. They are a more conservative test in this case.

teaching reading both had negative effects, significantly so in most subtests. Students whose teacher had attended an inservice read at a rate of 5 CWPM less and comprehended between 3-5% less than those whose teachers had not.

Experience had a positive and significant effect. Comparing the students of those teachers with 0-4 years experience and those with 5-10 years experience, the more experienced teachers had students who read 11.5 CWPM and comprehended between 11 and 12% more. The effect of further experience was not linear and may be affected by small sample sizes.

The presence of a school library, teachers who supervised their students in the library and the presence of a classroom reading corner were all strongly and positively significant. Students at schools with libraries read almost 8CWPM more than those who did not. Students whose teachers supervised them in the library read an astonishing 20.2 CWPM more than those who did not. Students in a classroom with a reading corner read almost 5 CWPM more than those who did not. These results suggest that these resources can assist ni-Vanuatu students in improving their reading skills and that access and appropriate supervision of their use increases their value.

The presence of a functioning Parents and Teachers' Association (PTA) was largely insignificant, but did have a small positive effect on listening comprehension. Teachers who met with parents had a largely insignificant effect, but did have a small positive and significant relationship with listening comprehension. However, comparing groups of students whose teachers met with parents once per term and those who met with parents twice, there was a significant negative relationship between meeting more often and with listening comprehension and dictation. Causality should not be assumed in this case, as it may be a result of poor student performance rather than a cause of it.

Schools which own the recommended reading have a strong, significant and positive relationship with better literacy acquisition. Students in these schools read on average 9.7 CWPM more and comprehended 7% more of what they read. A teacher who owned the curriculum guide had a positive, significant relationship with reading comprehension, listening comprehension and dictation. Students with a teacher who owned the guide scored between 3.5 and 6% more on the comprehension subtests.

The EGRA teacher survey also enquired into 7 teaching activities and the frequency with which they were undertaken. The following analysis (except where specified) compares students who undertook the activity 1-2 times a week and those who were reported by teachers as never undertaking the activity.

Students who practiced identifying the sounds in letters 1-2 times a week had significantly better scores in all subtests except listening comprehension. On average, they read 18 CWPM more and comprehended around 14% more. Repetition of words or sentences after a teacher had a significant effect on listening comprehension and dictation scores, however, these effects were mixed. Students who performed the activity 1-2 times a week scored 15% lower on listening comprehension, but had average scores 0.06 higher on dictation.

Table 29 Teacher and School-Specific Factors Associated with Reading Acquisition

	ORF		RCOMP%		LCOMP%		DICT%	
	z-statistic	p-value	z-statistic	p-value	z-statistic	p-value	z-statistic	p-value
Do you hold a Certificate in Primary Teaching?	-0.514	0.304	0.800	0.212	1.775	0.038	-1.670	0.047
Highest Qualification	-0.538	0.295	0.710	0.239	1.732	0.042	-1.673	0.047
Have you attended an in-service?	-2.572	0.005	-1.366	0.086	-2.040	0.021	-4.572	0.000
Have you attended a reading training?	-2.300	0.011	-0.422	0.336	-1.258	0.104	-4.661	0.000
Experience Level	4.060	0.000	4.387	0.000	3.316	0.000	6.084	0.000
Library Present	4.611	0.000	3.488	0.000	1.955	0.025	4.023	0.000
Supervision in Library	8.329	0.000	3.607	0.000	2.090	0.018	4.016	0.000
Reading Corner Present	2.390	0.008	4.030	0.000	4.782	0.000	1.006	0.157
PTA Functioning	-1.115	0.132	-1.191	0.117	3.247	0.001	-0.126	0.450
Meeting with Parents	-0.267	0.395	-0.677	0.249	1.489	0.068	0.705	0.241
How Often do Teachers Meet with Parents	-0.343	0.366	0.766	0.222	-3.518	0.000	-2.088	0.018
Teacher Owns Teachers' Guide for Reading	0.921	0.179	1.865	0.031	2.606	0.005	1.840	0.033
School has Recommended Reading	5.327	0.000	3.346	0.000	0.082	0.467	3.170	0.001
Students Practised Identifying the Sounds in Letters	6.932	0.000	3.336	0.000	0.302	0.381	4.260	0.000
The whole class repeated words or sentences that said first	0.199	0.421	-0.294	0.384	-2.181	0.015	1.403	0.080
Students copied down text from the chalkboard	1.597	0.055	1.609	0.054	-1.471	0.071	0.460	0.323
Students retold a story that they had read	-3.730	0.000	-4.039	0.000	-1.092	0.137	-3.052	0.001
Students sounded out unfamiliar words	-2.137	0.016	-1.365	0.086	-1.855	0.032	-1.357	0.087
Students learned meanings of new words	0.104	0.459	2.029	0.021	2.292	0.011	-0.798	0.213
Students Read Aloud	-2.837	0.002	-0.861	0.195	-0.550	0.291	-2.638	0.004
Students assigned reading on their own	-0.884	0.188	-1.355	0.088	-1.914	0.028	-0.273	0.392
Written Evaluations	4.002	0.000	2.503	0.006	-0.017	0.493	1.178	0.119
Oral Evaluations	2.088	0.018	-0.750	0.226	1.788	0.037	-0.609	0.271
Review of Portfolios and other projects	1.306	0.096	0.706	0.240	0.706	0.240	0.699	0.242
Student Reads aloud from chalkboard	-0.114	0.455	-0.843	0.200	0.238	0.406	-0.441	0.330
Review of homework	0.292	0.385	-0.233	0.408	-2.332	0.010	0.451	0.326
Observation and/or competency checklists	1.977	0.024	1.450	0.074	1.242	0.107	-0.929	0.176

Copying text from the chalkboard had a positive, significant relationship with all subtests except dictation when practicing the activity 1-2 times a week is compared to never practicing the activity. However, the effect decreases when the activity occurs more often.

Students retelling a story they had heard had a negative, significant association with all subtests except listening comprehension. Students practicing this activity 1-2 times a week read more than 10 CWPM less than those who did not practice the activity. The negative effect increases the more the activity is practiced.

Students sounding out unfamiliar words had a negative association with all subtests with students practicing the activity reading 11.8 CWPM less than those who did not. Learning the meanings of new words had positive, significant relationships with both types of comprehension tested, with students having between 5.5-7% higher comprehension scores.

Reading aloud had a negative effect on students' acquisition of oral reading fluency and dictation scores, while assigned reading had a negative association with both types of comprehension. It may be that the students had not yet obtained a degree of fluency high enough to benefit from the activity in the large group or classroom environment.

The survey also asked about the practice and frequency of three types of evaluations: written, oral and review of projects. Written evaluations carried out once per term had a significant, positive association with oral reading fluency and reading comprehension when compared to those students who never received such evaluations. This effect increased the more regularly the evaluations were carried out. Oral evaluations were positively associated with reading fluency and listening comprehension, but the effect was not uniformly linear as the frequency increased. Review of portfolios and projects had a positive, significant association with reading fluency that increased as the frequency of the evaluation was carried out.

Students who read from the chalkboard on 1-2 days had no significant difference with those who never did so. However, this effect increases rapidly when the activity is performed 3 or more times per week.

Review of homework had no significant relationship with any of the subtests except listening comprehension where it had a mild negative association. Observation and/or competency checklists had a positive, significant relationship with oral reading fluency and reading comprehension when performed once or twice a month compared to those teachers who never performed them.

Overall, resources such as libraries and reading corners and adequate supervision in them had strong positive relationships with students' acquisition of basic literacy skills. Although there is an admirable culture of teacher training is being developed in Vanuatu, assistance and improvements in the in-service and training courses provided to teachers will assist in improving student results.

Effect of Teacher Expectations on Student Performance

Finally, we explored the relationship between teacher's expectations on reading outcomes and student performance in sub-test 5a (oral reading passage). Table 30 below shows the distribution of teacher expectations about reading outcomes, including the median. For example, although most teachers in Francophone schools in Vanuatu expected students to read aloud a short passage with a few mistake at the end of Grade 3, the median expectation for this outcome falls at the end of Grade 2.

On average, teachers expect students to read aloud a short passage in Grade 2, write their names in Grade 1, understand stories they read in Grade 1, recognize the sounds of letters and graphemes in Grade 2, sound out unfamiliar words in Grade 2, and recite the alphabet in Grade 1. We measure teachers' expectations and fluency by measuring differences in student performance when teachers' expectations deviate from the median. We regressed student performance against teachers' expectations, excluding the median expectation. This equation applies to all tasks where the median expectation is Grade 2:

$$result = a + \beta_1 \text{expect_in_kindergarten} + \beta_2 \text{expect_in_grade1} + \beta_3 \text{expect_in_grade3}$$

Where *result* is the subtest under consideration (reading comprehension), *expect_in_kindergarten* is an indicator for teachers expecting students to perform a given task in kindergarten, similarly *expect_in_grade1* and *expect_in_grade3*. The coefficients $\beta_1 - \beta_2$ give us an average difference in performance between the excluded group of students (students whose teachers have the median expectation) and students whose teachers have different expectations. For example, regressing reading comprehension on teacher expectations on reading aloud a short passage, the coefficient β_2 gives us the difference in average reading comprehension between students whose teachers expect them to read aloud in Grade 1 and students whose teachers expect them to read aloud in Grade 2 (the median expectation).

Overall, if a teacher has more "realistic" expectations –i.e. consistent with the median expectation–, student performance is better than those whose teachers fall farthest from the median expectation, either "earlier" if the median expectation is Grade 2 or 3, "later" if the median expectation is either Grade 1 or before, or considers the outcome to be unimportant for reading development in Vanuatu (Tables 30 and 31). Compared to students whose teachers expectations fall on the *median expectation* for each skill tested:

- Students whose teachers expect them to recite the alphabet at the end of Grade 2, read 13 CWCPM more and understood almost 16% more of the text they read; students whose teachers expected them to recite the alphabet at the end of Grade 3 also showed similar improvements in oral reading fluency (12 CWCPM more) and reading comprehension (16% more). Interestingly, students whose teachers considered this skill to be unimportant, also showed better fluency in reading (6 CWCPM more) and reading comprehension (8% more).

Table 30 – Teachers median expectations about reading outcomes

Reading outcome	Teacher responses			
	Grade	Mean	SD	N
Read aloud a short passage with few mistakes	Kindergarten	6%	24%	98
	Grade 1	39%	49%	98
	Grade 2	26%	44%	98
	Grade 3	23%	43%	98
	Not important	0%	0%	98
Write name	Kindergarten	30%	46%	98
	Grade 1	55%	50%	98
	Grade 2	10%	30%	98
	Grade 3	3%	17%	98
	Not important	0%	0%	98
Understand stories they read	Kindergarten	4%	20%	98
	Grade 1	32%	47%	98
	Grade 2	38%	49%	98
	Grade 3	24%	43%	98
	Not important	0%	0%	98
Recognize the sounds of letters/graphemes	Kindergarten	15%	36%	98
	Grade 1	60%	49%	98
	Grade 2	14%	35%	98
	Grade 3	9%	29%	98
	Not important	0%	0%	98
Sound out invented words	Kindergarten	1%	10%	98
	Grade 1	32%	47%	98
	Grade 2	35%	48%	98
	Grade 3	30%	46%	98
	Not important	1%	10%	98
Understand stories they hear	Kindergarten	13%	34%	98
	Grade 1	45%	50%	98
	Grade 2	18%	39%	98
	Grade 3	20%	41%	98
	Not important	2%	14%	98
Recite alphabet	Kindergarten	36%	48%	98
	Grade 1	46%	50%	98
	Grade 2	9%	29%	98
	Grade 3	7%	26%	98
	Not important	0%	0%	98

- Students whose teachers expect them to write their name either at kindergarten or at the end of Grade 2, had better oral reading fluency and comprehension but these differences are not statistically significant. Interestingly, teachers that allowed their students to write their name “as late” as at the end of Grade 3, read almost 20 CWCPM more and understood 26% more of the text they read.

- Students whose teachers expect them to understand stories they hear at kindergarten or at the end of Grade 2, also had better oral reading fluency and comprehension but these differences are not statistically significant. These differences were positive and statistically significant in terms of reading fluency (18 CWCPM more) and reading comprehension (17%) if teachers expected students to consolidate this skill at the end of Grade 3.
- Students whose teachers expect them to sound out unfamiliar words in Grade 1 or that consider this skill unimportant had lower reading fluency (-6.7 CWCPM and -11 CWCPM, respectively) and comprehended less of the text they read (-7% and -12%, respectively).
- Students whose teachers expect them to sound out letters/graphemes before Grade 2 or that considered this to be unimportant is associated with lower reading fluency and comprehension but these effects are not statistically significant. Interestingly, students whose teachers allowed for this skill to consolidate at the end of Grade 3, read 11 CWCPM more and understood 16% more of the text they read.
- Students whose teachers expect them to read a short passage with a few mistakes in kindergarten, Grade 1 or that consider this skill to be unimportant, are associated to lower average reading fluency and comprehension. These effects are statistically significant only for those whose teachers consider the skill to be unimportant (11 CWCPM less and 12% fewer comprehension).
- Student whose teachers expect them to understand stories they read by Grade 1 or consider this to be unimportant associate to fewer reading fluency and comprehension at statistically significant levels. Students whose teachers allow for this skill to consolidate at the end of Grade 3 had better reading fluency (12 CWCPM more) but improvements in reading comprehension did not show statistical significance.

In conclusion, results of the analysis of teacher factors identified a set of teacher characteristics, instructional and assessment methods, and teacher expectations that have an effect on the reading performance of Francophone students in Vanuatu.

In terms of teacher characteristics, teacher certification had an average negative effect associated with teachers with a Certificate in Primary. Teacher experience had a significant effect across all subtests. Attendance at in-service training showed negative effects possibly due to the number of courses provided or the scope of content related to other subject areas. Frequent meetings with parents showed negative and statistically significant relationships on student fluency in reading and comprehension.

In terms of teacher instruction, students that never practiced letter/grapheme sound recognition or the meaning of new words were associated with lower performance in reading fluency and comprehension. On evaluation methods, the positive and statistical effects associated with oral reviews and the frequent review of projects and homework underscore the importance of frequent feedback and performance monitoring

Table 31 - Regression analyses of average effects of teachers' expectations on fluency in reading

		Dependent variable			
<i>Dropped category: median expectation per skill</i>		Correct words read per minute (CWCPM)			
Independent variables		Coeff	F	R2	N
Read aloud a short passage with few mistakes					
	Kindergarten	-0.33	.	0.03	1067
	Grade 1	-1.70			
	Grade 3	6.56			
	Not important	-11.03**			
Write name					
	Kindergarten	1.47	5.43	0.06	1147
	Grade 2	4.47			
	Grade 3	19.69***			
Understand stories they read					
	Kindergarten	2.53	.	0.10	1132
	Grade 1	-6.191*			
	Grade 3	12.28**			
	Not important	-6.733**			
Recognize the sounds of letters					
	Kindergarten	-4.59	.	0.03	1141
	Grade 1	-2.40			
	Grade 3	11.41**			
	Not important	-6.772*			
Sound out unfamiliar words					
	Kindergarten	5.16	10.99	0.06	1126
	Grade 1	-6.735*			
	Grade 3	8.42			
	Not important	-11.05**			
Understand stories they hear					
	Kindergarten	0.38	11.43	0.11	1133
	Grade 2	1.99			
	Grade 3	18.29***			
Recite alphabet					
	Kindergarten	4.20	4.44	0.06	1147
	Grade 2	13.31**			
	Grade 3	12.00**			
	Not important	6.093**			

Significant levels: * p<0.05 ** p<0.01 *** p<0.001

Table 32 - Regression analyses of average effects of teachers' expectations on reading comprehension

		Dependent variable			
<i>Dropped category: median expectation per skill</i>		% Reading Comprehension			
Independent variables		Coeff	F	R2	N
Read aloud a short passage with few mistakes					
	Kindergarten	1.33	.	0.03	1069
	Grade 1	-1.90			
	Grade 3	8.43			
	Not important	-11.78**			
Write name					
	Kindergarten	2.75	13.29	0.08	1149
	Grade 2	6.54			
	Grade 3	25.82***			
Understand stories they read					
	Kindergarten	0.12	.	0.06	1134
	Grade 1	-8.068**			
	Grade 3	8.52			
	Not important	-8.004**			
Recognize the sounds of letters					
	Kindergarten	-4.33	.	0.05	1143
	Grade 1	-3.90			
	Grade 3	16.17***			
	Not important	-6.769*			
Sound out unfamiliar words					
	Kindergarten	3.93	9.00	0.06	1128
	Grade 1	-6.906*			
	Grade 3	11.83*			
	Not important	-11.83**			
Understand stories they hear					
	Kindergarten	0.88	6.47	0.07	1135
	Grade 2	2.52			
	Grade 3	17.39***			
Recite alphabet					
	Kindergarten	6.25	7.52	0.07	1149
	Grade 2	15.74***			
	Grade 3	16.37**			
	Not important	8.393***			

Significant levels: * p<0.05 ** p<0.01 *** p<0.001

on student learning outcomes. The positive and statistically significant effect of reading from the chalkboard could be related to teachers' use of blackboard as the main source of print to students and the immediate feedback available to the student.

Finally, in terms of teacher expectations, teachers who perceived some skills were best to be developed at a later (or earlier) grade compare to the common expectation of their peers, seem to have a positive effect on the reading outcomes of their students. As expected, teachers that considered key skills in reading development to be unimportant –e.g., understand stories they read- had negative effects on reading fluency and comprehension. Interestingly, when teachers used their professional judgment and allowed for skills to be developed at a later grade, students showed positive and statistical significant effects. This suggests teachers may perceive curricular outcomes to be “too high” for the average student in their classroom and as such, allow students to consolidate skills in later grades.

Chapter 7 - Next Steps

VANEGRA French results call for immediate attention to the way reading development is taking place in the country. As a diagnostic study, its main purpose is to (a) generate data on the extent reading performance in the first cycle of primary education, (b) identify specific skills that could be hampering reading comprehension among Francophone Ni-Vanuatu students, and (c) identify student and teacher characteristics and behaviors that contribute to better reading outcomes in Vanuatu.

VANEGRA results indicate that while most students are able to develop some of the basic skills needed to become effective readers, poor knowledge of the alphabetic principle hinders the development of word-level reading, which will slow down fluency development and limit comprehension. Based on the data presented, specific recommendations to be considered are presented to improve the quality of reading instruction in Francophone schools in Vanuatu:

- **Improve the focus and structure of reading instruction to promote greater fluency in reading by the end of Grade 3.** Research has shown that developing fluency in reading is crucial to help students become effective readers in the first years of primary education. As students approach reading at a speed of about 45-60 words per minute, the reader becomes better able to focus on the meaning of the text rather than on individual letters and words. As shown by VANEGRA French results, students reading at least 45 correct words per minute were able to understand about 83% of the text they read. However, less than 1 in 10 Francophone students is able to reach this fluency level at the end of Grade 3. Two factors could contribute to explain these results. On the one hand, poor decoding skills suggest and instruction falls short to develop a solid foundational knowledge of the alphabetic principle. On the other, poor language skills on students entering the Francophone stream may contribute to delay the development of pre-reading skills in Grades 1 and 2 as students struggle to develop language and reading skills simultaneously. As the MoE sets forth to implement the new K-12 curricula, it is fundamental that instructional improvements in the early grades take into account the linguistic diversity of the country and provide adequate strategies to prepare students for reading development in a secondary language (L2). In addition, the new curriculum opens up the opportunity to improve instruction of letter and word-level reading skills to promote a better sequenced instruction of basic reading skills.
- **Ensure teachers working in the early grades have the knowledge to improve their practice to impact the reading outcomes of their students.** In order to improve reading instruction in Vanuatu, teachers will have to improve their knowledge of reading instruction to improve classroom practice. Though most Francophone teachers in VANEGRA use their professional judgment to adjust expectations about reading outcomes, a number of them still consider some of these skills to be unimportant in reading development. Also, while some instructional activities rendered expected outcomes, the fact that other activities typically associated with better reading outcomes showed no statistical significance in Francophone schools suggests the need to review how these activities are carried out in the classroom to better understand the possible factors that are hindering their effectiveness. This is also true of the average effects of teacher methods observed on student outcomes.

- **Support the reading instruction skills of as many teachers working with beginning readers as possible.** Data from the teacher questionnaire showed that only 26% of the teachers in the sample participated in general in-service training courses and only 25% had attended in-service training on reading in the last two years. If only 1 in 4 teachers in the country benefit from learning about specific ways in which they can improve their practice, Ni-Vanuatu teachers will continue to practice their profession in isolation. The role of the newly created In-Service Unit (ISU) at the MoE will be critical to further develop teacher knowledge and practice for reading instruction. As such, it is recommended that VANE GRA findings inform the development of the lesson plans and materials and that ISU staff works in close collaboration with curriculum developers to ensure teachers understand the new curriculum goals and receive support on how to achieve them.
- **Establish reference reading standards to monitor reading development in the early grades.** As the MoE moves on to establish an oral reading fluency standard under VERM, it is important to consider that these indicators should be considered reference standards and not high-stakes benchmarks that would jeopardize additional funding or the promotion of teachers. Since these reference standards are drawn from baseline data, additional measures will be needed in subsequent years to learn about the rate at which Francophone students develop reading abilities. In this sense, reading standards should not be seen as high-stakes but an essential piece to monitor reading progression in the classroom. In order to set up national reference standards to monitor system-level quality improvements, it would be best to use the percentage of zero-score students in selected sub-tests as a marker and track reductions in the shares at least biannually. Monitoring achievements over time will eventually provide more information on the rate and the way in which average fluency develops among Francophone students. A modified version of the test could be used to screen students during the school year that may be in need of additional support.
- **Help teachers translate national reference standards into easy-to-assess, easy-to-monitor reading goals to monitor the reading progression of their students during the school year.** In order for teachers and schools to be able to be held accountable for reading outcomes, teachers, school officials and parents need to understand what these standards mean and how each can support reading development in their own school. School development plans should contain reading improvement goals as part of their minimum service standards, as well as a description of activities aimed at encouraging reading. Parents and the community as a whole should be brought into this effort.
- **Introduce policy actions that increase student exposure to literacy outside the school.** VANE GRA French results showed how students who have reading books at home have better reading outcomes and are more likely to become fluent readers. The effect was positive for both boys and girls and for all basic reading skills. Thus, it is advisable that the MoE promotes increased student access to books at home. However, making more books available to students will not per se ensure better reading outcomes. Along with access to more reading materials, Ni-Vanuatu children will need support to develop a reading habit beyond the requirements of the school curriculum. One way of achieving this would be ensure the books being procured by the ongoing Book Flood program are

not only grade-appropriate but that they are accessible to students in and outside of the classroom. Since 52% of the teachers reported having access to a school library, an adequate book-borrowing scheme carries the potential to expose students to print on a more regular basis. Another way of increasing exposure to literacy would be to develop community literacy programs where schools become a focal point of literacy in the community. Teachers and community leaders can start up reading clubs and reading competitions to further promote a reading culture among beginning and more experienced readers.

- **Promote strategies to assure greater parental and community involvement in the reading development process of children.** Research shows that the earlier the parental involvement, the more powerful and long-lasting the effects will be both in terms of academic and behavioral outcomes of children. Moreover, research also shows that the most effective form of parental involvement includes those where parents participated in learning activities at home. However, in order for parental involvement to be more effective, parents need not only to be informed about the academic progress of their children but also about ways in which teachers and the school planned to improve outcomes. If parents and schools communicate regularly on the academic progress of children, parents tend to monitor school and classroom activities, and coordinate efforts with teachers such as helping with homework and carrying out extracurricular activities. For this to happen, it is important that parents and schools commit jointly to the reading development process of children. In addition to providing information on the academic progress of children, schools can advise on –and even facilitate– different ways in which parents can promote reading at home. If reading outcomes are to improve in the country, reading development must be seen as a joint enterprise that extends beyond the teacher and the school classroom environment.
- **Finally, it is clear that more research is needed to better understand the factors that contribute to differences in reading performance between boys and girls.** An analysis of the factors that contribute to these differences is beyond the scope of this survey. However, VANEGRAS French data showed that boys and girls finish Grade 1 at similar levels of performance in reading, but in Grade 2 girls transition into word-level reading faster than boys and the difference increases at the end of Grade 3. A better understanding of this phenomenon is critical to inform sector policies and increase the success of future reading development programs.

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ANNEX 1/ TABLES

Table 33 -VANEGRA French Reliability Matrix, Grades 2 and 3

	Phonemic Awareness	Correct Letters Sounds Per Minute	Correct Words Per Minute	Correct Non Words Per Minute	Oral Reading Fluency	Reading Comprehension	Listening Comprehension	Writing
Phonemic Awareness	1							
Correct Letters Sounds Per Minute	0.5259	1						
Correct Words Per Minute	0.4607	0.7926	1					
Correct Non Words Per Minute	0.4576	0.7944	0.9025	1				
Oral Reading Fluency	0.3854	0.7302	0.8737	0.864	1			
Reading Comprehension	0.3831	0.6186	0.7094	0.6573	0.7411	1		
Listening Comprehension	0.3402	0.347	0.3292	0.3196	0.2935	0.4288	1	
Writing	0.4106	0.6038	0.7	0.623	0.6424	0.5734	0.3303	1

Table 34 Descriptive Statistics: Grades 2 and 3

	Phonemic Awareness	Correct Letters Sounds Per Minute	Correct Words Per Minute	Correct Non Words Per Minute	Oral Reading Fluency	Reading Comprehension	Listening Comprehension	Writing
Mean	0.54	19.09	10.91	8.35	18.58	0.20	0.29	0.33
SD	0.37	15.86	11.39	10.88	23.64	0.28	0.29	0.23
Mean/SD Ratio	1.47	1.20	0.96	0.77	0.79	0.72	1.00	1.40
Min	0	0	0	0	0	0	0	0
Max	1	88	57.6923	76.9231	201.1765	1	1	1
Skewness	-0.39	1.31	1.48	1.71	2.35	1.35	0.74	0.53
Kurtosis	1.63	4.72	4.79	6.40	10.98	3.85	2.57	2.68
Sample Size	866	866	865	865	865	866	866	866

Table 35- Cronbach's Alpha, Grade 1 Subsample

Item	Obs	Sign	item-test correlation	item-test correlation	average inter item covariance	alpha
Phonemic Awareness	430	+	0.46	0.27	0.29	0.74
Correct Graphemes Per Minute	430	+	0.66	0.51	0.24	0.70
Correct Words Per Minute	428	+	0.71	0.58	0.23	0.68
Correct Non Words Per Minute	428	+	0.60	0.43	0.26	0.71
Oral Reading Fluency	427	+	0.71	0.58	0.23	0.68
Reading Comprehension	430	+	0.59	0.43	0.26	0.71
Listening Comprehension	430	+	0.45	0.26	0.29	0.74
Writing	430	+	0.55	0.38	0.27	0.72

Table 36- Cronbach's Alpha, Grade 2 Subsample

Item	Obs	Sign	item-test correlation	item-test correlation	average inter item covariance	alpha
Phonemic Awareness	433	+	0.63	0.51	0.47	0.86
Correct Graphemes Per Minute	433	+	0.81	0.74	0.42	0.84
Correct Words Per Minute	432	+	0.86	0.81	0.41	0.83
Correct Non Words Per Minute	432	+	0.85	0.79	0.41	0.83
Oral Reading Fluency	432	+	0.83	0.77	0.41	0.83
Reading Comprehension	433	+	0.66	0.54	0.46	0.86
Listening Comprehension	433	+	0.36	0.20	0.54	0.89
Writing	433	+	0.73	0.63	0.44	0.85
Test scale					0.45	0.87

Table 37- Cronbach's Alpha, Grade 3 Subsample

Item	Obs	Sign	item-test correlation	item-test correlation	average inter item covariance	alpha
Phonemic Awareness	433	+	0.56	0.43	0.59	0.91
Correct Graphemes Per Minute	433	+	0.84	0.78	0.52	0.88
Correct Words Per Minute	433	+	0.91	0.87	0.50	0.87
Correct Non Words Per Minute	433	+	0.88	0.83	0.51	0.88
Oral Reading Fluency	433	+	0.86	0.81	0.51	0.88
Reading Comprehension	433	+	0.80	0.73	0.53	0.89
Listening Comprehension	433	+	0.56	0.43	0.60	0.91
Writing	433	+	0.76	0.67	0.54	0.89
Test scale					0.54	0.90

Table 38- Cronbach's Alpha, Grade 1 Subsample, Zero Scores Converted to Missing

Item	Obs	Sign	item-test correlation	item-test correlation	average inter item covariance	alpha
Phonemic Awareness	430	-	0.53	0.07	-0.01	.
Correct Graphemes Per Minute	212	+	0.21	-0.16	0.03	0.19
Correct Words Per Minute	68	+	0.54	0.31	-0.01	.
Correct Non Words Per Minute	14	+	0.87	0.82	0.00	.
Oral Reading Fluency	84	+	0.52	0.28	0.00	.
Reading Comprehension	430	+	0.30	-0.07	0.05	0.28
Listening Comprehension	430	-	0.55	0.11	-0.02	.
Writing	430	-	0.46	0.03	0.01	0.05
Test scale					0.01	0.04

Table 39- Cronbach's Alpha, Grade 2 Subsample, Zero Scores Converted to Missing

Item	Obs	Sign	item-test correlation	item-test correlation	average inter item covariance	alpha
Phonemic Awareness	433	+	0.65	0.50	0.42	0.83
Correct Graphemes Per Minute	399	+	0.80	0.70	0.37	0.80
Correct Words Per Minute	348	+	0.83	0.76	0.36	0.80
Correct Non Words Per Minute	221	+	0.83	0.75	0.38	0.81
Oral Reading Fluency	322	+	0.84	0.76	0.37	0.80
Reading Comprehension	433	+	0.65	0.51	0.41	0.83
Listening Comprehension	433	+	0.42	0.22	0.50	0.87
Writing	433	+	0.73	0.61	0.39	0.82
Test scale					0.40	0.84

Table 40- Cronbach's Alpha, Grade 3 Subsample, Zero Scores Converted to Missing

Item	Obs	Sign	item-test correlation	item-test correlation	average inter item covariance	alpha
Phonemic Awareness	433	+	0.56	0.42	0.57	0.90
Correct Graphemes Per Minute	426	+	0.84	0.78	0.49	0.87
Correct Words Per Minute	410	+	0.91	0.88	0.46	0.86
Correct Non Words Per Minute	351	+	0.85	0.79	0.49	0.87
Oral Reading Fluency	402	+	0.86	0.81	0.48	0.87
Reading Comprehension	433	+	0.80	0.72	0.50	0.87
Listening Comprehension	433	+	0.56	0.43	0.57	0.90
Writing	433	+	0.76	0.67	0.51	0.88
Test scale					0.51	0.89

Table 41 - ANOVA Results: Differences in Means across Sub-tests

SUBSCALE		Sum of Squares	df	Mean Square	F	Sig.
Phonemic Awareness	Between Groups	61.00	2	30.50	308.25	.000
	Within Groups	127.93	1293	.10		
	Total	188.93	1295			
Correct Grapheme Sounds Per Minute	Between Groups	110177.65	2	55088.82	371.69	.000
	Within Groups	191638.63	1293	148.21		
	Total	301816.28	1295			
Correct Familiar Words Per Minute	Between Groups	55960.06	2	27980.03	408.12	.000
	Within Groups	88645.64	1293	68.56		
	Total	144605.69	1295			
Correct Unfamiliar Words Per Minute	Between Groups	38960.60	2	19480.30	303.22	.000
	Within Groups	83067.46	1293	64.24		
	Total	122028.06	1295			
Oral Reading Fluency	Between Groups	189370.08	2	94685.04	316.02	.000
	Within Groups	387402.77	1293	299.62		
	Total	576772.84	1295			
Reading Comprehension	Between Groups	22.71	2	11.36	270.99	.000
	Within Groups	54.18	1293	.04		
	Total	76.89	1295			
Listening Comprehension	Between Groups	15.36	2	7.68	116.58	.000
	Within Groups	85.20	1293	.07		
	Total	100.57	1295			
Writing (score)	Between Groups	23.25	2	11.63	329.38	.000
	Within Groups	45.64	1293	.04		
	Total	68.89	1295			

Table 42 Teacher and School Specific Characteristics: Subtest Averages Between Groups

Do you hold a Certificate in Primary Teaching?					
		ORF	RCOMP %	LCOMP %	DICT %
No	Mean	20.200	0.160	0.190	0.394
	SD	15.555	0.167	0.247	0.204
	N	20	20	20	20
Yes	Mean	18.359	0.191	0.290	0.316
	SD	23.323	0.273	0.292	0.226
	N	746	746	746	746
Total	Mean	18.407	0.190	0.287	0.318
	SD	23.148	0.270	0.292	0.225
	N	766	766	766	766
	t-statistic	-0.514	0.800	1.775	-1.670
	d.f.	12.220	0.001	0.003	0.002
	p-value t test	0.308	0.285	0.163	0.172
	p-value z test	0.304	0.212	0.038	0.047

Table 43 Teacher and School Specific Characteristics: Subtest Averages Between Groups

Highest Qualification					
		ORF	RCOMP %	LCOMP %	DICT %
None	Mean	20.200	0.160	0.190	0.394
	SD	15.555	0.167	0.247	0.204
	N	20	20	20	20
Certificate in Primary Teaching	Mean	18.273	0.187	0.287	0.316
	SD	23.295	0.271	0.291	0.227
	N	716	716	716	716
Certificate in Education	Mean	14.371	0.188	0.150	0.320
	SD	19.215	0.236	0.186	0.223
	N	16	16	16	16
Total	Mean	18.241	0.187	0.282	0.318
	SD	23.034	0.268	0.289	0.227
	N	752	752	752	752
	t-statistic	-0.538	0.710	1.732	-1.673
	d.f.	12.248	0.001	0.003	0.002
	p-value t test	0.300	0.303	0.167	0.171
	p-value z test	0.295	0.239	0.042	0.047

Table 44 Teacher and School Specific Characteristics: Subtest Averages Between Groups

Have you attended an inservice?					
		ORF	RCOMP %	LCOMP %	DICT %
No	Mean	20.209	0.206	0.309	0.342
	SD	24.126	0.285	0.303	0.237
	N	559	559	559	559
Yes	Mean	14.986	0.176	0.260	0.261
	SD	23.361	0.246	0.269	0.192
	N	177	177	177	177
Total	Mean	18.953	0.199	0.297	0.322
	SD	24.033	0.276	0.296	0.229
	N	736	736	736	736
	t-statistic	-2.572	-1.366	-2.040	-4.572
	d.f.	4.105	0.000	0.001	0.000
	p-value t test	0.031	0.201	0.145	0.069
	p-value z test	0.005	0.086	0.021	0.000
Have You Attended a Reading Training?					
		ORF	RCOMP %	LCOMP %	DICT %
No	Mean	20.371	0.203	0.300	0.348
	SD	24.458	0.281	0.301	0.240
	N	520	520	520	520
Yes	Mean	15.982	0.193	0.270	0.271
	SD	22.864	0.267	0.281	0.181
	N	210	210	210	210
Total	Mean	19.108	0.200	0.292	0.326
	SD	24.077	0.277	0.295	0.227
	N	730	730	730	730
	t-statistic	-2.300	-0.422	-1.258	-4.661
	d.f.	3.626	0.000	0.001	0.000
	p-value t test	0.052	0.373	0.214	0.067
	p-value z test	0.011	0.336	0.104	0.000

Table 45 Teacher and School Specific Characteristics: Subtest Averages Between Groups

Experience Level					
		ORF	RCOMP %	LCOMP %	DICT %
0-4 years	Mean	13.371	0.116	0.233	0.260
	SD	21.611	0.226	0.257	0.194
	N	217	217	217	217
5-9 years	Mean	24.859	0.244	0.347	0.419
	SD	25.830	0.264	0.317	0.240
	N	114	114	114	114
10-19 years	Mean	16.584	0.202	0.274	0.324
	SD	18.560	0.278	0.295	0.212
	N	255	255	255	255
20-29 years	Mean	34.876	0.329	0.400	0.444
	SD	38.157	0.398	0.372	0.332
	N	31	31	31	31
30-39 years	Mean	21.047	0.228	0.326	0.310
	SD	23.629	0.275	0.289	0.220
	N	149	149	149	149
40+ years	Mean	19.104	0.224	0.314	0.364
	SD	27.176	0.296	0.272	0.284
	N	99	100	100	100
Total	Mean	18.581	0.197	0.291	0.327
	SD	23.644	0.275	0.291	0.233
	N	865	866	866	866
	t-statistic	4.060	4.387	3.316	6.084
	d.f.	7.944	0.001	0.001	0.001
	p-value t test	0.002	0.071	0.093	0.052
	p-value z test	0.000	0.000	0.000	0.000

Table 46 Teacher and School Specific Characteristics: Subtest Averages Between Groups

Library Present					
		ORF	RCOMP %	LCOMP %	DICT %
No	Mean	15.113	0.164	0.272	0.292
	SD	18.351	0.250	0.290	0.210
	N	415	415	415	415
Yes	Mean	23.074	0.233	0.313	0.358
	SD	28.289	0.296	0.295	0.243
	N	369	369	369	369
Total	Mean	18.860	0.197	0.292	0.323
	SD	23.875	0.275	0.293	0.228
	N	784	784	784	784
	t-statistic	4.611	3.488	1.955	4.023
	d.f.	2.972	0.000	0.000	0.000
	p-value t test	0.022	0.089	0.150	0.078
	p-value z test	0.000	0.000	0.025	0.000
Supervision in Library					
		ORF	RCOMP %	LCOMP %	DICT %
No	Mean	8.025	0.130	0.230	0.259
	SD	9.718	0.224	0.309	0.197
	N	40	40	40	40
Yes	Mean	28.188	0.275	0.339	0.399
	SD	30.684	0.311	0.300	0.251
	N	269	269	269	269
Total	Mean	25.578	0.256	0.325	0.381
	SD	29.617	0.305	0.303	0.249
	N	309	309	309	309
	t-statistic	8.329	3.607	2.090	4.016
	d.f.	5.788	0.002	0.003	0.001
	p-value t test	0.000	0.086	0.142	0.078
	p-value z test	0.000	0.000	0.018	0.000

Table 47 Teacher and School Specific Characteristics: Subtest Averages Between Groups

Reading Corner Present					
		ORF	RCOMP %	LCOMP %	DICT %
No	Mean	15.166	0.129	0.203	0.308
	SD	23.076	0.244	0.273	0.243
	N	180	180	180	180
Yes	Mean	19.920	0.216	0.317	0.328
	SD	24.133	0.278	0.295	0.224
	N	584	584	584	584
99 missing code	Mean	21.155	0.250	0.350	0.325
	SD	20.821	0.330	0.259	0.216
	N	20	20	20	20
Total	Mean	18.860	0.197	0.292	0.323
	SD	23.875	0.275	0.293	0.228
	N	784	784	784	784
	t-statistic	2.390	4.030	4.782	1.006
	d.f.	3.938	0.000	0.001	0.000
	p-value t test	0.048	0.077	0.066	0.249
	p-value z test	0.008	0.000	0.000	0.157

Table 48 Teacher and School Specific Characteristics: Subtest Averages Between Groups

PTA Functioning					
		ORF	RCOMP %	LCOMP %	DICT %
No	Mean	21.535	0.226	0.267	0.330
	SD	24.699	0.284	0.282	0.236
	N	302	302	302	302
Yes	Mean	19.376	0.199	0.341	0.328
	SD	24.066	0.275	0.298	0.225
	N	335	335	335	335
99 missing code	Mean	9.928	0.127	0.210	0.237
	SD	13.172	0.238	0.272	0.187
	N	99	99	99	99
Total	Mean	18.991	0.201	0.293	0.317
	SD	23.451	0.275	0.291	0.227
	N	736	736	736	736
	t-statistic	-1.115	-1.191	3.247	-0.126
	d.f.	3.737	0.000	0.001	0.000
	p-value t test	0.173	0.222	0.095	0.460
	p-value z test	0.132	0.117	0.001	0.450

Table 49 Teacher and School Specific Characteristics: Subtest Averages Between Groups

Meeting with Parents					
		ORF	RCOMP %	LCOMP %	DICT %
No	Mean	19.289	0.207	0.273	0.316
	SD	23.458	0.279	0.280	0.233
	N	275	275	275	275
Yes	Mean	18.813	0.193	0.306	0.329
	SD	24.298	0.274	0.300	0.227
	N	498	498	498	498
Total	Mean	18.982	0.198	0.294	0.324
	SD	23.989	0.276	0.294	0.229
	N	773	773	773	773
	t-statistic	-0.267	-0.677	1.489	0.705
	d.f.	3.177	0.000	0.000	0.000
	p-value t test	0.404	0.310	0.188	0.305
	p-value z test	0.395	0.249	0.068	0.241

Table 50 Teacher and School Specific Characteristics: Subtest Averages Between Groups

How Often do Teachers Meet with Parents					
		ORF	RCOMP %	LCOMP %	DICT %
About Once per Term	Mean	19.279	0.194	0.320	0.334
	SD	23.826	0.276	0.303	0.233
	N	443	443	443	443
About Twice per Term	Mean	17.310	0.233	0.183	0.278
	SD	33.717	0.300	0.216	0.147
	N	36	36	36	36
About Thrice per Term	Mean	7.000	0.067	0.217	0.198
	SD	5.560	0.130	0.276	0.155
	N	12	12	12	12
Total	Mean	18.835	0.193	0.307	0.326
	SD	24.449	0.275	0.299	0.227
	N	491	491	491	491
	t-statistic	-0.343	0.766	-3.518	-2.088
	d.f.	31.979	0.003	0.001	0.001
	p-value t test	0.367	0.292	0.088	0.142
	p-value z test	0.366	0.222	0.000	0.018

Table 51 Teacher and School Specific Characteristics: Subtest Averages Between Groups

School has Recommended Reading					
		ORF	RCOMP %	LCOMP %	DICT %
No	Mean	14.876	0.170	0.296	0.300
	SD	19.808	0.263	0.296	0.212
	N	426	426	426	426
Yes	Mean	24.583	0.239	0.298	0.354
	SD	27.970	0.291	0.294	0.244
	N	326	326	326	326
Total	Mean	19.084	0.200	0.297	0.324
	SD	24.161	0.277	0.295	0.228
	N	752	752	752	752
	t-statistic	5.327	3.346	0.082	3.170
	d.f.	3.311	0.000	0.000	0.000
	p-value t test	0.006	0.092	0.474	0.097
	p-value z test	0.000	0.000	0.467	0.001
Teacher Owns Curriculum Guide					
		ORF	RCOMP %	LCOMP %	DICT %
No	Mean	17.617	0.171	0.253	0.300
	SD	23.318	0.244	0.281	0.225
	N	251	251	251	251
Yes	Mean	19.303	0.208	0.311	0.333
	SD	24.431	0.288	0.300	0.229
	N	503	503	503	503
Total	Mean	18.742	0.195	0.292	0.322
	SD	24.063	0.275	0.295	0.228
	N	754	754	754	754
	t-statistic	0.921	1.865	2.606	1.840
	d.f.	3.342	0.000	0.000	0.000
	p-value t test	0.213	0.157	0.117	0.158
	p-value z test	0.179	0.031	0.005	0.033

Table 52 Teacher and School Specific Characteristics: Subtest Averages Between Groups

Students Practised Identifying the Sounds in Letters					
		ORF	RCOMP %	LCOMP %	DICT %
Never	Mean	4.650	0.070	0.270	0.194
	SD	7.788	0.163	0.236	0.137
	N	20	20	20	20
1 or 2 days	Mean	22.744	0.210	0.287	0.345
	SD	25.123	0.268	0.297	0.230
	N	167	167	167	167
3 or 4 days	Mean	21.893	0.267	0.375	0.376
	SD	27.005	0.314	0.304	0.225
	N	210	210	210	210
Daily	Mean	15.460	0.153	0.249	0.285
	SD	20.905	0.247	0.281	0.223
	N	369	369	369	369
Total	Mean	18.529	0.194	0.293	0.320
	SD	23.759	0.275	0.294	0.228
	N	766	766	766	766
	t-statistic	6.932	3.336	0.302	4.260
	d.f.	6.635	0.002	0.003	0.001
	p-value t test	0.000	0.093	0.407	0.073
	p-value z test	0.000	0.000	0.381	0.000

Table 53 Teacher and School Specific Characteristics: Subtest Averages Between Groups

The whole class repeated words or sentences that you said first					
		ORF	RCOMP %	LCOMP %	DICT %
Never	Mean	25.661	0.285	0.515	0.332
	SD	22.712	0.306	0.300	0.180
	N	26	26	26	26
1 or 2 days	Mean	26.797	0.264	0.364	0.396
	SD	31.592	0.317	0.324	0.256
	N	78	78	78	78
3 or 4 days	Mean	19.078	0.206	0.312	0.339
	SD	23.354	0.282	0.297	0.225
	N	188	188	188	188
Daily	Mean	14.278	0.152	0.253	0.286
	SD	20.441	0.248	0.279	0.218
	N	431	431	431	431
Total	Mean	17.286	0.183	0.290	0.313
	SD	23.086	0.270	0.294	0.226
	N	723	723	723	723
	t-statistic	0.199	-0.294	-2.181	1.403
	d.f.	31.703	0.005	0.005	0.002
	p-value t test	0.422	0.409	0.137	0.197
	p-value z test	0.421	0.384	0.015	0.080

Table 54 Teacher and School Specific Characteristics: Subtest Averages Between Groups

Students copied down text from the chalkboard					
		ORF	RCOMP %	LCOMP %	DICT %
Never	Mean	16.667	0.178	0.360	0.355
	SD	17.801	0.236	0.316	0.267
	N	55	55	55	55
1 or 2 days	Mean	21.386	0.238	0.292	0.372
	SD	26.336	0.288	0.278	0.216
	N	233	233	233	233
3 or 4 days	Mean	17.295	0.177	0.321	0.279
	SD	23.486	0.268	0.296	0.212
	N	227	227	227	227
Daily	Mean	18.553	0.185	0.269	0.320
	SD	23.089	0.280	0.301	0.235
	N	228	228	228	228
Total	Mean	18.917	0.199	0.299	0.326
	SD	23.961	0.277	0.294	0.228
	N	743	743	743	743
	t-statistic	1.597	1.609	-1.471	0.460
	d.f.	8.620	0.001	0.002	0.001
	p-value t test	0.075	0.177	0.190	0.363
	p-value z test	0.055	0.054	0.071	0.323

Table 55 Teacher and School Specific Characteristics: Subtest Averages Between Groups

Students retold a story that they had read					
		ORF	RCOMP %	LCOMP %	DICT %
Never	Mean	29.016	0.329	0.315	0.425
	SD	22.345	0.315	0.269	0.241
	N	73	73	73	73
1 or 2 days	Mean	18.044	0.169	0.276	0.330
	SD	24.807	0.258	0.298	0.236
	N	340	340	340	340
3 or 4 days	Mean	17.948	0.222	0.327	0.301
	SD	22.914	0.283	0.301	0.186
	N	203	203	203	203
Daily	Mean	15.771	0.154	0.276	0.283
	SD	22.208	0.258	0.282	0.236
	N	144	144	144	144
Total	Mean	18.642	0.196	0.294	0.323
	SD	23.814	0.275	0.294	0.227
	N	760	760	760	760
	t-statistic	-3.730	-4.039	-1.092	-3.052
	d.f.	8.551	0.002	0.001	0.001
	p-value t test	0.003	0.077	0.236	0.101
	p-value z test	0.000	0.000	0.137	0.001

Table 56 Teacher and School Specific Characteristics: Subtest Averages Between Groups

Students sounded out unfamiliar words					
		ORF	RCOMP %	LCOMP %	DICT %
Never	Mean	29.182	0.300	0.427	0.426
	SD	24.120	0.348	0.241	0.199
	N	22	22	22	22
1 or 2 days	Mean	17.390	0.193	0.319	0.362
	SD	22.196	0.268	0.309	0.234
	N	123	123	123	123
3 or 4 days	Mean	19.641	0.213	0.292	0.297
	SD	25.943	0.279	0.287	0.218
	N	238	238	238	238
Daily	Mean	17.804	0.179	0.279	0.320
	SD	22.799	0.269	0.294	0.230
	N	377	377	377	377
Total	Mean	18.642	0.196	0.294	0.323
	SD	23.814	0.275	0.294	0.227
	N	760	760	760	760
	t-statistic	-2.137	-1.365	-1.855	-1.357
	d.f.	29.210	0.006	0.003	0.002
	p-value t test	0.021	0.201	0.157	0.202
	p-value z test	0.016	0.086	0.032	0.087

Table 57 Teacher and School Specific Characteristics: Subtest Averages Between Groups

Students learned meanings of new words					
		ORF	RCOMP %	LCOMP %	DICT %
1 or 2 days	Mean	19.168	0.174	0.270	0.339
	SD	26.707	0.266	0.292	0.248
	N	198	198	198	198
3 or 4 days	Mean	19.421	0.230	0.338	0.321
	SD	21.390	0.280	0.298	0.203
	N	196	196	196	196
Daily	Mean	18.255	0.194	0.284	0.316
	SD	23.631	0.278	0.292	0.230
	N	357	357	357	357
Total	Mean	18.800	0.198	0.294	0.323
	SD	23.909	0.276	0.294	0.228
	N	751	751	751	751
	t-statistic	0.104	2.029	2.292	-0.798
	d.f.	5.907	0.001	0.001	0.001
	p-value t test	0.461	0.146	0.131	0.286
	p-value z test	0.459	0.021	0.011	0.213

Table 58 Teacher and School Specific Characteristics: Subtest Averages Between Groups

Students Read Aloud					
		ORF	RCOMP %	LCOMP %	DICT %
1 or 2 days	Mean	25.897	0.225	0.332	0.375
	SD	31.523	0.324	0.305	0.270
	N	111	111	111	111
3 or 4 days	Mean	16.121	0.193	0.312	0.297
	SD	23.002	0.277	0.295	0.199
	N	181	181	181	181
Daily	Mean	17.724	0.187	0.276	0.317
	SD	21.562	0.261	0.290	0.225
	N	474	474	474	474
Total	Mean	18.529	0.194	0.293	0.320
	SD	23.759	0.275	0.294	0.228
	N	766	766	766	766
	t-statistic	-2.837	-0.861	-0.550	-2.638
	d.f.	11.778	0.001	0.001	0.001
	p-value t test	0.008	0.274	0.340	0.115
	p-value z test	0.002	0.195	0.291	0.004

Table 59 Teacher and School Specific Characteristics: Subtest Averages Between Groups

Students assigned reading on their own					
		ORF	RCOMP %	LCOMP %	DICT %
Never	Mean	18.034	0.213	0.338	0.320
	SD	19.573	0.309	0.246	0.218
	N	32	32	32	32
1 or 2 days	Mean	14.302	0.129	0.228	0.308
	SD	19.481	0.228	0.302	0.206
	N	65	65	65	65
3 or 4 days	Mean	17.260	0.208	0.335	0.318
	SD	20.309	0.277	0.298	0.191
	N	198	198	198	198
Daily	Mean	20.879	0.210	0.293	0.338
	SD	26.355	0.282	0.294	0.247
	N	436	436	436	436
Total	Mean	19.190	0.202	0.300	0.329
	SD	24.076	0.278	0.295	0.228
	N	731	731	731	731
	t-statistic	-0.884	-1.355	-1.914	-0.273
	d.f.	17.346	0.004	0.003	0.002
	p-value t test	0.194	0.202	0.153	0.415
	p-value z test	0.188	0.088	0.028	0.392

Table 60 Teacher and School Specific Characteristics: Subtest Averages Between Groups

Written Evaluations					
		ORF	RCOMP %	LCOMP %	DICT %
Never	Mean	5.826	0.049	0.195	0.228
	SD	9.538	0.130	0.247	0.177
	N	86	86	86	86
Once per term	Mean	16.131	0.105	0.195	0.261
	SD	25.209	0.189	0.249	0.216
	N	114	114	114	114
Once or twice per term	Mean	16.545	0.192	0.354	0.313
	SD	24.490	0.289	0.317	0.258
	N	125	125	125	125
Weekly or Monthly	Mean	21.811	0.243	0.321	0.353
	SD	24.072	0.291	0.300	0.221
	N	409	409	409	409
Total	Mean	18.159	0.190	0.292	0.317
	SD	23.641	0.272	0.296	0.227
	N	734	734	734	734
	t-statistic	4.002	2.503	-0.017	1.178
	d.f.	6.571	0.001	0.001	0.001
	p-value t test	0.004	0.121	0.494	0.224
	p-value z test	0.000	0.006	0.493	0.119

Table 61 Teacher and School Specific Characteristics: Subtest Averages Between Groups

Oral Evaluations					
		ORF	RCOMP %	LCOMP %	DICT %
Never	Mean	16.182	0.245	0.218	0.386
	SD	10.187	0.246	0.282	0.204
	N	22	22	22	22
Once per term	Mean	27.689	0.197	0.345	0.351
	SD	38.578	0.294	0.285	0.288
	N	58	58	58	58
Once or twice per term	Mean	16.167	0.192	0.359	0.302
	SD	23.522	0.292	0.315	0.241
	N	145	145	145	145
Weekly or Monthly	Mean	18.103	0.191	0.276	0.321
	SD	21.986	0.269	0.292	0.213
	N	465	465	465	465
Total	Mean	18.441	0.193	0.297	0.322
	SD	23.999	0.275	0.298	0.226
	N	690	690	690	690
	t-statistic	2.088	-0.750	1.788	-0.609
	d.f.	29.716	0.004	0.005	0.003
	p-value t test	0.023	0.295	0.162	0.326
	p-value z test	0.018	0.226	0.037	0.271

Table 62 Teacher and School Specific Characteristics: Subtest Averages Between Groups

Review of Portfolios and other projects					
		ORF	RCOMP %	LCOMP %	DICT %
Never	Mean	9.675	0.090	0.216	0.224
	SD	15.757	0.189	0.258	0.171
	N	98	98	98	98
Once per term	Mean	12.397	0.106	0.239	0.240
	SD	20.314	0.199	0.268	0.196
	N	228	228	228	228
Once or twice per term	Mean	29.618	0.323	0.393	0.396
	SD	30.822	0.320	0.331	0.231
	N	117	117	117	117
Weekly or Monthly	Mean	25.077	0.314	0.346	0.400
	SD	22.257	0.312	0.300	0.211
	N	142	142	142	142
Total	Mean	18.463	0.197	0.292	0.307
	SD	23.934	0.277	0.296	0.218
	N	585	585	585	585
	t-statistic	1.306	0.706	0.706	0.699
	d.f.	4.310	0.001	0.001	0.000
	p-value t test	0.131	0.304	0.304	0.306
	p-value z test	0.096	0.240	0.240	0.242

Table 63 Teacher and School Specific Characteristics: Subtest Averages Between Groups

Student Reads aloud from chalkboard					
		ORF	RCOMP %	LCOMP %	DICT %
Never	Mean	4.650	0.070	0.270	0.194
	SD	7.788	0.163	0.236	0.137
	N	20	20	20	20
1 or 2 days	Mean	4.385	0.036	0.287	0.176
	SD	9.626	0.111	0.307	0.156
	N	39	39	39	39
3 or 4 days	Mean	18.634	0.188	0.218	0.364
	SD	19.507	0.264	0.271	0.201
	N	33	33	33	33
Daily	Mean	19.706	0.211	0.300	0.328
	SD	24.817	0.282	0.300	0.229
	N	624	624	624	624
Total	Mean	18.401	0.196	0.294	0.318
	SD	24.035	0.275	0.297	0.226
	N	716	716	716	716
	t-statistic	-0.114	-0.843	0.238	-0.441
	d.f.	5.196	0.002	0.005	0.002
	p-value t test	0.457	0.277	0.426	0.368
	p-value z test	0.455	0.200	0.406	0.330

Table 64 Teacher and School Specific Characteristics: Subtest Averages Between Groups

Review of homework					
		ORF	RCOMP %	LCOMP %	DICT %
Once per term	Mean	18.500	0.233	0.533	0.292
	SD	16.257	0.294	0.207	0.171
	N	6	6	6	6
Once or twice per month	Mean	21.000	0.200	0.267	0.333
	SD	20.973	0.302	0.299	0.235
	N	15	15	15	15
Weekly or more often	Mean	18.231	0.191	0.291	0.320
	SD	23.900	0.273	0.297	0.227
	N	703	703	703	703
Total	Mean	18.291	0.191	0.292	0.320
	SD	23.772	0.273	0.297	0.227
	N	724	724	724	724
	t-statistic	0.292	-0.233	-2.332	0.451
	d.f.	63.880	0.018	0.011	0.007
	p-value t test	0.386	0.427	0.129	0.365
	p-value z test	0.385	0.408	0.010	0.326

Table 65 Teacher and School Specific Characteristics: Subtest Averages Between Groups

Observation and/or competency checklists					
		ORF	RCOMP %	LCOMP %	DICT %
Once per term or more	Mean	17.136	0.175	0.305	0.335
	SD	21.691	0.263	0.294	0.228
	N	174	174	174	174
Once or twice a month	Mean	22.597	0.217	0.344	0.312
	SD	30.431	0.292	0.304	0.241
	N	188	188	188	188
Weekly or more often	Mean	16.955	0.190	0.265	0.318
	SD	20.490	0.272	0.290	0.219
	N	376	376	376	376
Total	Mean	18.435	0.193	0.295	0.320
	SD	23.769	0.275	0.296	0.227
	N	738	738	738	738
	t-statistic	1.977	1.450	1.242	-0.929
	d.f.	7.588	0.001	0.001	0.001
	p-value t test	0.044	0.192	0.216	0.262
	p-value z test	0.024	0.074	0.107	0.176