

Linking Singapore's English Language Syllabus 2010 to The Lexile Framework for Reading: STELLAR as an Example

Colin Emerson, Learning Science and Technology, MetaMetrics

Abstract

The recent release of the English Language Syllabus 2010 (ELS2010) in Singapore has brought renewed interest in the way that the Singaporean education system prepares its students to read, write, speak, and hear the English language. As reading plays an important role in the development of literacy skills and general English language abilities, it is necessary to consider how students can best develop a strong foundation in and love of reading. While the ELS2010 sets out specific learning outcomes and guidelines for achievement, instruction, and assessment for learning, the standards are qualitative in nature. The purpose of this paper is to examine how the reading-specific standards set forth in ELS2010 can be strengthened for the STELLAR program using a tool to measure text complexity and reader ability, The Lexile® Framework for Reading (LFR). The STELLAR program serves as the main literacy development program at the primary school level, and it is built on a pedagogic model that allows for analysis of both instructional benefits and policy implications of linking it to the LFR. The classroom activities of the STELLAR program are analyzed for areas where enhancements for students, teachers, parents, and policymakers can be made using the LFR. Consideration of STELLAR and the LFR shows that standards backed by a quantitative set of measures could inform not only enhancements for classroom instruction, but also policymaking at the school and national levels. In addition, the examination identifies other aspects of the ELS2010 curriculum that could be enhanced by linking to The Lexile Frameworks for Reading and Writing.

Introduction

The designers of every education system have desired student outcomes in mind when they plan their curricula, and Singapore is no different. As a small, island nation of 5 million people, Singapore's government invests heavily in its citizens as human capital. Singapore's Ministry of Education (MOE) desires that those educated in the Singapore education system finish with "the necessary skills and knowledge to take on challenges of the future" (Ministry of Education Singapore [MOE], 2009). As a part of its plan to keep the country economically viable in the years to come, "Singapore has invested heavily in trying to anticipate the required range and mix of skills that its students will need when they graduate to further grow Singapore's economy, and matches its curriculum to those needs" (McKinsey, 2007, p. 35).

It would seem that Singapore is doing quite well in preparing its students for the future. Based on the OECD's 2009 Programme for International Student Assessment (PISA), Singapore ranks in the top 5 of all countries surveyed for reading, mathematics, and science (OECD, 2009, pp. 13-14). Considering that PISA 2009 was designed to measure the reading literacy skills that are supposedly reliable predictors of economic and social well-being, it appears that Singapore is a leading nation in preparing its students to contribute meaningfully to economy and society (OECD, 2009, p. 13). Beyond simply producing good test scores, the country's education system is noted for its abilities to get the right people to become teachers, develop them into effective instructors, and ensure that the system is able to deliver the best possible instruction for every child (McKinsey, Executive Summary).

Despite the high rankings and international renown, MOE is constantly evaluating and developing new initiatives to improve education, including the development of literacy skills, from Primary 1 through Secondary 4.¹ The *Report of the English Language Curriculum & Pedagogy Review 2006* recommended the following desired outcomes for English education at all levels (MOE, 2006):

- Our students should be comfortable using English to express themselves and enjoy learning the language. All should attain foundational skills, particularly in grammar, spelling and basic pronunciation. They should be able to use English comfortably in everyday situations and for functional purposes.
- A majority who have the potential should develop a good level of proficiency in both speech and writing. Some in this group who have a flair for the language will find this an advantage in frontline positions, and various service industries.
- A significant number of approximately 20% should acquire a high degree of proficiency in the English language. They will help Singapore keep its edge in a range of professions, and play an important role in teaching and the

¹ It is worth noting that the language of instruction for all subjects, with the exception of Mother Tongue classes and courses taught at special bilingual institutions, is English. This is true for the 6 years of Primary School, as well as the 4-5 years of Secondary School.

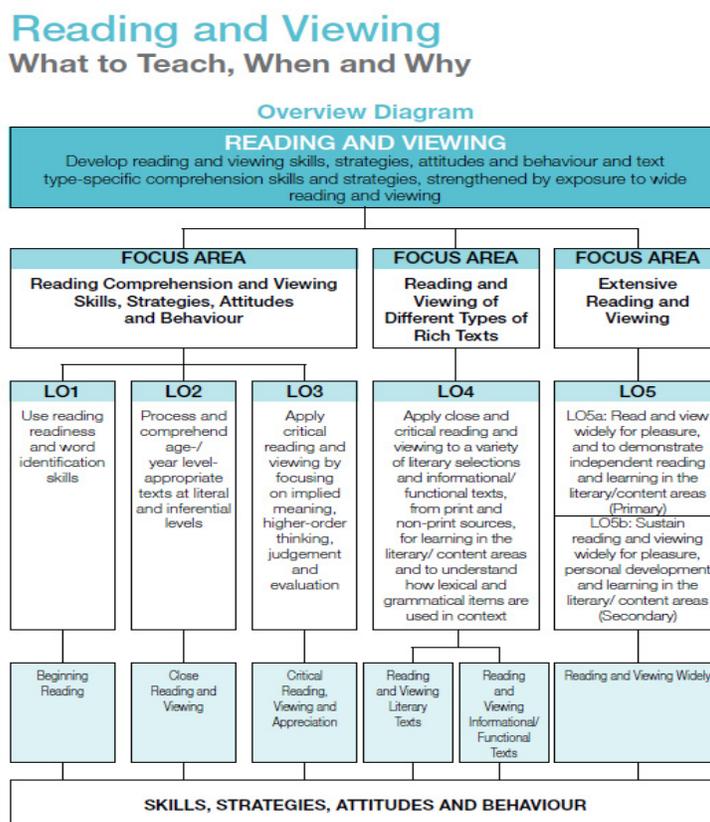
media. Their command of English should be on a par with the equivalent group in countries such as the UK, US and Australia. Further, within this group, we can expect a smaller group of Singaporeans to achieve mastery in their command of the language, no different from the best in these English-speaking countries.

The English Language Syllabus 2010 (ELS2010) translates these desired outcomes for English education into standards in the form of specific learning outcomes and guidelines for achievement, instruction, and assessment for learning at the various grade levels. The syllabus focuses on six areas of language learning, and it details standards for each: *listening and viewing*, *reading and viewing*, *speaking and representing*, *writing and representing*, *grammar*, and *vocabulary*. With implementation begun in 2010 at Primary 1, Primary 2, and Secondary 1 levels, the ELS2010 paves the way for a coherent English language curriculum across the primary and secondary school years (Curriculum Planning and Development Division [CPDD], 2008a).

Purpose and Rationale

While the ELS2010 provides detailed verbal descriptions of the standards for English language learning, these standards could be strengthened for *reading and viewing* with the adoption of quantitative metrics to measure text complexity and reader ability (See Figure 1 for ELS2010 “Reading and Viewing” learning outcomes). *Reading and viewing* is chosen because reading forms the foundation upon which much of English language learning takes place. Specifically for Learning Outcome 2 (LO2)—“process and comprehend age-/year level-appropriate texts at literal and inferential levels”—quantitative standards based on text complexity and reader ability could be developed to ensure that readers are progressing at an appropriate pace toward the desired English reading proficiency. Rather than relying on traditional “grade level” texts, a quantifiable metric to compare text complexity and reader ability would allow teachers, parents, and policymakers to track students’ progress towards LO2.

Figure 1. Reading and Viewing – Overview Diagram (CPDD, 2008a, p. 29)



Knowing where one is going is an important step in knowing where to start. As stated in LO2, one of the key learning outcomes for *Reading and Viewing* is for students to “process and comprehend age-/ year level-appropriate texts at literal and inferential levels” (CPDD, 2008a, p. 29). To that end, MOE could powerfully enhance its English language curriculum by

linking it to The Lexile® Framework for Reading (LFR).² The LFR provides a way to match readers to texts using Lexile reader measures and Lexile text measures. A student receives a Lexile reader measure from a test or program that reports results in Lexile reader measures, and a piece of text receives a Lexile text measure from the Lexile Analyzer® based on two strong predictors of how difficult a text is to comprehend, namely, word frequency and sentence length.³ Both measures fall on the same developmental scale for direct comparison. Put simply, if one knows how well a student can read and how hard a specific book is to comprehend, then one can predict how well that student will likely understand the book. The consistent, objective metrics provided by the Framework allow for a quantitative representation of reading standards.

While other aspects of the English language curriculum could be enhanced through links to the LFR, as well as the Lexile Framework for Writing, this paper will focus on reading in order to examine instructional benefits and policy implications of linking STELLAR to the LFR.⁴ STELLAR—the pedagogic approach used at the primary school level to develop literacy skills—is an integral part of translating the aims of the ELS2010 into the classroom, and the program aims to build a strong foundation in English (CPDD, 2008a, p. 119). Through STELLAR's example, wider links between the English language curriculum spelled out in ELS2010 and the Lexile Frameworks will be identified for further study.

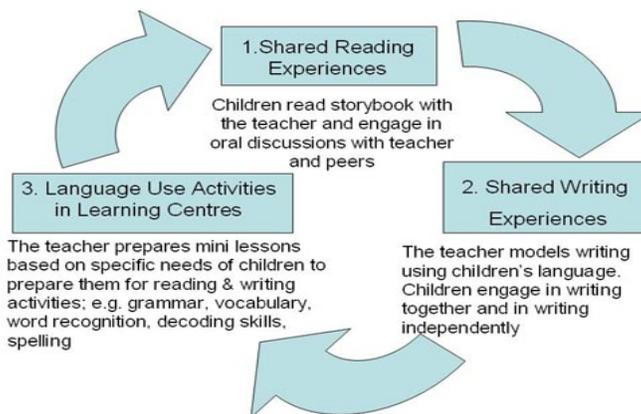
What is STELLAR?

In order to develop a strong foundation at the primary level, MOE initiated the STELLAR program—**ST**rat^{egies} for **E**nglish **L**anguage **L**earning **A**nd **R**ead^{ing}—to ensure that students engage in a coherent, rigorous curriculum as they begin their journey to develop literacy skills. Aligned with the ELS2010, STELLAR uses a standard pedagogic model that is designed to promote the development of literacy skills in order to prepare students for further English language learning at the secondary level (MOE, 2008a).

The program “aims to strengthen both language and reading skills as well as promote a positive attitude towards reading in the foundational years through the use of well-established, learner-centred and developmentally appropriate pedagogical approaches using authentic children’s literature” (MOE, 2008d). The program was initially developed for Primary 1 (P1) and Primary 2 (P2) classrooms, with the intent to develop STELLAR through Primary 6 (P6).⁵ The STELLAR curriculum materials were developed by Curriculum Planning Officers from MOE in consultation with teachers and school leaders. The STELLAR curriculum was recommended for use in all P1 and P2 classrooms in 2009. The curriculum materials are currently available to all primary schools.

The STELLAR vision is “Children Who Love Reading and Have a Strong Foundation in the English Language” (MOE, 2008c). In order to realize this vision, the curriculum follows a carefully crafted pedagogic model (see Figure 2):

Figure 2. The STELLAR Plan and Strategy (MOE, 2008b)



² The Lexile Framework for Reading was developed by MetaMetrics Inc., an educational measurement and research organization.

³ The Lexile Analyzer is a software program that evaluates the reading demand—or readability—of books, articles and other materials. The Lexile Analyzer measures the complexity of the text by breaking down the entire piece and studying its characteristics, such as sentence length and word frequency, which represent the syntactic and semantic challenges that the text presents to a reader. The outcome is the text complexity, expressed as a Lexile measure, along with information on the word count, mean sentence length and mean log frequency (MetaMetrics, 2011).

⁴ The Lexile Framework for Writing was developed by MetaMetrics Inc.

⁵ STELLAR was developed by the Literacy Development Programme of the English Language and Literature Branch, Curriculum Planning and Development Division, MOE.

At the Lower Primary levels, STELLAR employs three strategies: the Shared Book Approach (SBA), the Modified Language Experience Approach (MLEA), and Learning Centres (LC) (CPDD, 2008a, p. 119):

- As part of SBA, the teacher and students engage in a shared reading experience using a “Big Book.” Following this introduction to the Big Book, the teacher explicitly teaches language items, structures, and skills based on the Big Book. Follow-up activities are chosen by the teacher to suit students’ learning needs (MOE, 2008c).
- MLEA builds on the language structures and vocabulary that students have been exposed to in SBA through a shared experience that involves class writing. In this shared experience, the teacher amalgamates input from many students into a piece of class writing, and the class writing forms the basis for group writing. Students complete the group writing in small, mixed-ability groups. Finally, students engage in individual writing after the scaffolded cooperative learning experiences (MOE, 2008c).
- Building on both SBA and MLEA, the activities in the Learning Centers reinforce the language skills learnt previously. LC is divided into three main learning centers: the Reading Center, the Word Study Center, and the Listening Center. At each of these centers, students engage in planned, differentiated activities that allow them to re-learn, revisit, or extend what they have learned. Students engage in these activities at their own pace and in differentiated ability groups (MOE, 2008c).

At the Middle to Upper Primary levels, STELLAR employs Supported Reading, Know-Want to Know-Learned (K-W-L), Retelling, Writing Process Cycle, and Learning Centres. These strategies are used to promote consolidation and extension of skills already learned, acquisition of new skills and knowledge through extensive reading and viewing, the progressive application of understanding to achieve various communication purposes, and the progressive development of independence in all areas of language (CPDD, 2008a, p. 119). Teachers facilitate the learning during these years through a combination of direct instruction, group facilitation, and careful planning of follow-up activities.

Instructional Benefits of The Lexile Framework for Reading

MOE prides itself on providing a quality education for Singaporean students of all ability levels, and STELLAR specifically aims to create an environment where children learn to love reading while building a strong foundation in the English language. A key component of the STELLAR curriculum is the differentiation of activities to allow students to learn at their own pace and in differentiated ability groups. What better way to do this than to match individual readers with texts of appropriate difficulty?

Components of the LFR could be used to measure STELLAR resources on the Lexile scale. Using the Lexile Analyzer the storybooks (Big Books) and other resources provided to schools could be analyzed and given a Lexile text measure. Activities and resources used in the Learning Centres could be analyzed similarly, and appropriate resources could be selected for the different student ability groups. Linking the STELLAR materials to the Lexile scale would give teachers, parents, and policymakers a sense of the difficulty of each resource.

For the teacher knowledge of the Lexile text measures of resources and the Lexile reader measures of students would be a powerful instructional tool. First, teachers would better be able to predict student comprehension of the STELLAR resources, and they could plan scaffolding and follow-up activities accordingly. Second, Lexile reader measures would provide another means for teachers to divide students into mixed-ability groups for MLEA and LC activities—strong readers and weak readers could be placed together to promote cooperative learning. Finally, activities planned for the Learning Centers could be far more individualized for each student based on Lexile reader measures. Teachers could use the LFR to inform their selection of resources in the LC to guarantee that all students—weak, average, and strong—would be able to find targeted text with which to engage.

For the student a Lexile reader measure would only enhance the individualization of classroom learning through STELLAR. Once a student receives a Lexile reader measure, then he/she could be matched with text of appropriate difficulty. During Part 3 of STELLAR lessons, the student could engage in reading within his/her Lexile range at the Learning Centres. This would allow each student to be challenged appropriately, and it would ensure that struggling students and high achievers are not shortchanged by resources that are too hard or too easy to comprehend. As students move toward more independent, self-directed reading at the Middle and Upper Primary levels, the LFR would allow them to continue to

challenge themselves appropriately by selecting texts of appropriate difficulty. Outside the classroom, this Framework has great power at home, where parents can use the "Find a Book" tool to choose appropriate reading material for their child.⁶

Policy Implications

Mapping the STELLAR curriculum materials to the Lexile scale would certainly have implications, but these implications would strengthen STELLAR in the long run, and they would go a long way toward helping MOE realize its goal of nurturing individuals with the skills and knowledge to take on the challenges of the future. STELLAR is designed not only to get students to enjoy reading, but also to prepare them for the demands of reading later in life, especially at secondary school as part of the ELS2010. With the ELS2010 as the end point, the LFR would help MOE better track and measure student progress towards secondary school-readiness. In addition, it would help those that develop the STELLAR resources to build their resources and program with the end in mind. This would inform development of STELLAR resources at all levels P1-P6, and it would have important implications for assessments and textbooks/resources at national and school levels.

Assessment

As STELLAR extends for the duration of the primary school years, linking the program to the LFR would have important potential policy implications for national assessments. In addition, these potential policy implications would lead to consequences for school-based assessments at all levels.

At the end of P6, students sit for their national, summative Primary School Leaving Examination (PSLE) overseen by the Singapore Examinations and Assessment Board (SEAB). Analysis of texts read in all subjects at the Secondary 1 level could yield an average Lexile text measure for the passages students are expected to read and comprehend at the end of their primary school years. With this knowledge, MOE could implement several policies. First, MOE could work with SEAB to mandate that all future PSLE versions contain text in a certain Lexile text measure range. This would have the effect of guaranteeing that students who do well on the PSLE are reading at a level that qualifies them as secondary-school ready. Second, knowledge of the average Lexile text measures for Secondary 1 textbooks and resources would help MOE to develop a reading growth trajectory curve for the primary school years. With the end goal of students reading at or above a certain Lexile reader measure, a growth trajectory curve could be developed from P1-P6 in order that students, teachers, parents, and policymakers could track progress towards secondary school-readiness.

In the United States, research has been done to approximate the level, on the Lexile scale, at which students need to be reading in order to be college- and career-ready, and reading growth trajectory curves have been developed to serve as paths towards this goal (Stenner, Koons, & Swartz, 2009; Williamson, 2008). Similar research could be conducted in Singapore, and reading growth trajectory curves could be modeled for Singaporean students as well. These reading growth trajectory curves could be developed for secondary school-readiness in reading, as well as post-secondary school-readiness in reading.

At the school level, a growth trajectory curve developed by MOE would have direct implications on both summative and formative assessment. In order to measure progress at the end of each year, schools could set their year-end summative assessments to yield students' Lexile measures. Compared to the curve, this would provide a yearly progress report for teachers, school leaders, parents, and students. To complement these more summative assessments, schools could also use mid-year benchmark assessments to measure progress along the way. These benchmark assessments would not only act as formative in terms of providing data on how to adjust instruction, but they would also provide information for school leaders to evaluate student reading growth trajectories toward the demands of secondary school.

Technology would provide MOE and schools with other means of furthering formative assessment for all students. The emergence of web-based personalized learning platforms has allowed teachers to take individualized learning to scale, and this emergence facilitates personalized instruction by targeting learners at their current level to promote reading growth. One example of such a platform is Learning Oasis™, a web-based program that provides students with targeted, intensive, self-directed practice and immediate feedback with progress measured on the developmental Lexile scales for reading and writing.⁷ Programs such as Learning Oasis could supplement the three-pronged STELLAR lessons by providing additional, individualized support for all students.

⁶ "Find a Book" is an online tool that allows anyone to search for reading material based on Lexile measure and area of interest (MetaMetrics, 2011).

⁷ <http://www.alearningoasis.com/>

Textbooks and other resources

Once a reading growth trajectory curve has been created and the STELLAR resources have been measured and assigned Lexile text measures, then the accuracy of the match between the desired and measured Lexile text measures at each grade level could be seen on the Lexile scale. The quality of this match would then inform decisions made by curriculum planners, school leaders, and teachers regarding the resources to be used. Due to the careful planning and extensive experience of those who designed the STELLAR resources, the difference between the desired Lexile text measure on the curve and the Lexile text measure of the resources (Big Books, small books, reading activities in Learning Centres, etc.) would most likely be small.

For the sake of argument let's assume that the difference between the desired Lexile text measure on the curve and the Lexile text measure of the resources were substantial. If this were the case, then a revision of the STELLAR resources might be necessary. This would require additional work on the part of the Curriculum Planning Officers who initially designed the STELLAR resources. The revised resources would need to be measured using the Lexile Analyzer in order to ensure a match to the growth trajectory curve.

Going forward, all resources produced for STELLAR—at the P1-P6 levels—would need to be measured during production and before mass printing to ensure a quality match between the measured Lexile text measure and the desired Lexile text measure based on the curve. Resources with different Lexile text measures could be produced for differentiation among ability groups. As STELLAR materials are authored and developed by MOE, this would be simpler than if the materials were developed by private publishers.

Conclusion

Singapore has traditionally been very forward-thinking in its approach to education. MOE is not one to rest on its laurels, and the STELLAR program is but one example of the Ministry's initiatives to bring together student-centred classrooms, well-trained teachers, and carefully developed curriculum materials to achieve desired outcomes of education. Linking this program to the LFR makes good sense for MOE because the Framework provides quantifiable measures of progress and achievement for all students, and it supports each student to develop reading and literacy skills to the best of his/her ability. Developing each student to be the best that he/she can be is exactly what MOE hopes to do for the future of Singapore.

While linking STELLAR to the LFR would certainly have consequences, the implications of these consequences would strengthen STELLAR and provide a means for setting a quantifiable standard for reading progress during the primary years. More importantly, students would be supported with individualized reading activities that would ensure that all students, from struggling to high achieving, could read challenging texts that would promote reading growth. The ability to provide individualized reading support would serve to inform intervention strategies for all students, and the use of web-based personalized learning platforms could further support literacy development inside and outside the classroom.

Developing a love of reading in primary students is important, as is preparing them for secondary school reading demands. As STELLAR could be linked to the LFR to measure progress towards secondary school-readiness, so too could the secondary school English language curriculum detailed in ELS2010 be linked to measure readiness for post-secondary options. Similarly, as writing begins to play a larger and larger role as students age, the Lexile Framework for Writing could provide an effective way to promote and track students' development as writers. Beginning with STELLAR linked to the LFR, however, would provide a strong foundation for all Singaporean students upon which to build their English language literacy skills.

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MetaMetrics, an educational measurement and research organization, develops scientific measures of academic achievement that link assessment with targeted instruction to improve learning. The organization's renowned psychometric team created The Lexile Framework for Reading; El Sistema Lexile para Leer, the Spanish-language version of the reading framework; The Quantile Framework for Mathematics; and The Lexile Framework for Writing. In addition to licensing Lexile and Quantile measures to state departments of education, testing and instructional companies, and publishers, MetaMetrics offers professional development, resource measurement and customized consulting services.

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