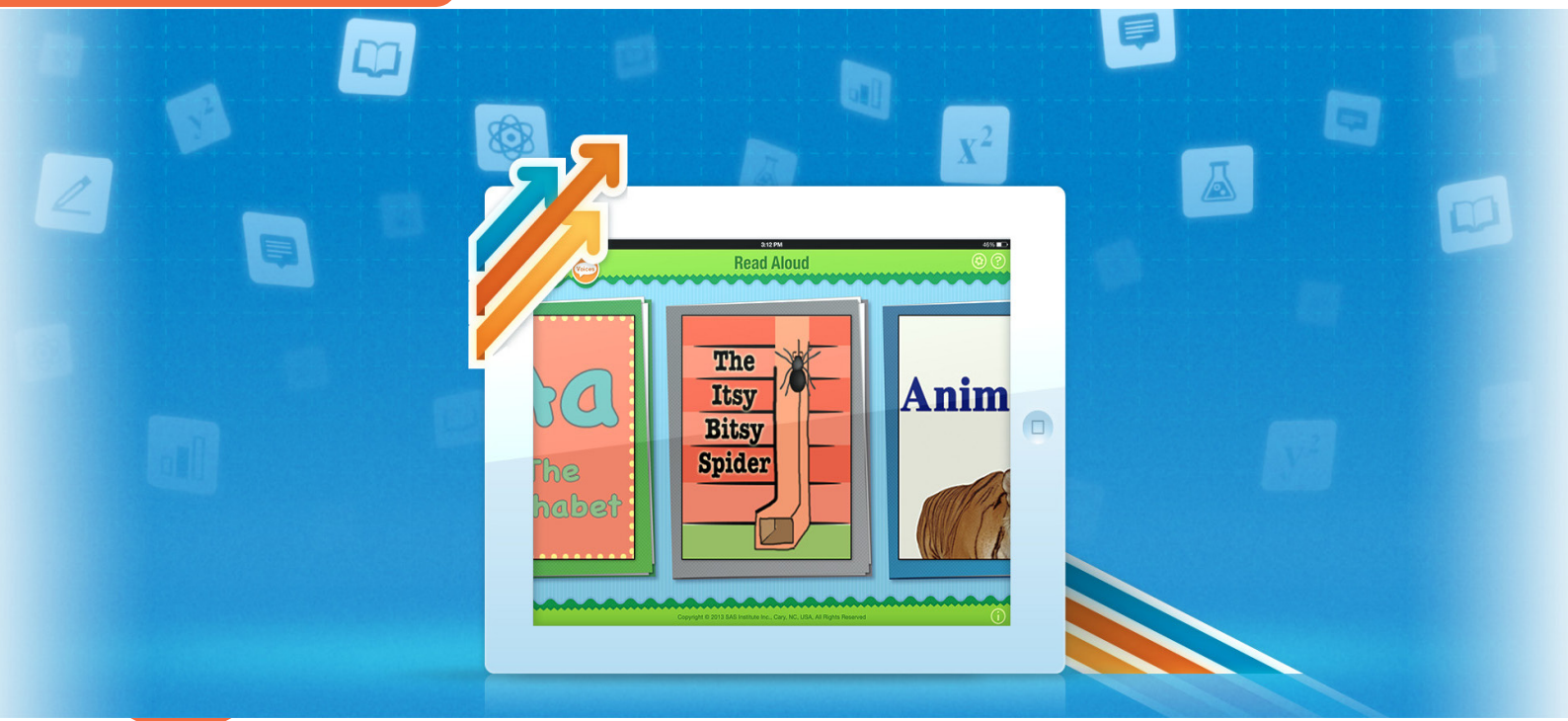
› White Paper



SAS Read Aloud: Storytime, Anytime

Early reading development at your convenience

SAS® Curriculum Pathways®
Free Learning for K-12 & Beyond

Contents

About SAS Curriculum Pathways

Available to educators at no cost, SAS® Curriculum Pathways® provides interactive, standards-based tools, resources, and apps in English language arts, mathematics, sci¬ence, social studies, and Spanish for grades K-12 and beyond. SAS focuses on topics where doing, seeing, and listening provide information and encourage insights in ways conventional methods cannot. Built in accordance with how students learn, SAS provides engaging content that can be differentiated to meet varied needs. SAS provides learner-centered activities with measurable outcomes and targets higher-order thinking skills. Materials are linked to state and common core standards. Educators can use these resources in a variety of technology settings (www.sascurriculumpathways.com).

Introduction

Reading by third grade matters. Overwhelming research confirms the profound relationship between 3rd grade reading proficiency and high school graduation rates[1], and these alarming statistics often raise the question, "what is so important about the third grade?" In short, for the majority of U.S. students, 4th grade defines the time in which they are no longer learning to read but rather reading to learn. Whether it be from a textbook, website, worksheet, or other document, students in and beyond the 4th grade are expected to demonstrate a certain degree of academic independence across the content areas by learning from text. Consequently, when reading deficiencies are not properly addressed, those students unable to read proficiently by the time they graduate the 3rd grade tend to fall further and further behind -not only in English language arts, but many if not all major subjects. When compounded over time, it comes as no surprise these struggling students disengage in school by the time they reach high school and become four times more likely to drop out than their peers who read proficiently by third grade[1].

In response, a great deal of focus has been placed on developing best-practices and programs for supporting young children as they begin to read. In fact, more than 30 states have adopted official legislation supporting and even mandating 3rd grade reading proficiency by funding interventions that target early readers both at school and in the home[2,3]. Among these efforts, stakeholders and experts tout shared reading experiences as one of the most beneficial instructional techniques for early reading development[4]. Also known as story time or joint reading, shared book reading - when a more advanced reader reads aloud to an emergent reader - has consistently shown to have positive, long term effects on students' literacy development[5]. Furthermore, interactive shared reading sessions that incorporate strategies for further engaging the emergent reader and directing visual attention toward print have proven even more effective[6,7].

While many reports suggest at-home, shared reading experiences do occur[8], both quality and quantity of these interactions could be improved. Parents and other readers are generally unaware of best-practices, such as print referencing[9], and the frequency of these experiences reasonably falls victim to busy and demanding schedules.

SAS® Read Aloud was created in order to supplement and enhance shared-reading time by integrating several research-based features to optimize children's learning experience. With more than 50 titles to choose from, each preloaded with a fluent recording of the text, SAS Read Aloud makes story time anytime.

Motivation: Shared-Reading Experiences

Before children can read proficiently by the end of third grade, several foundational skills develop during a period often referred to as emergent reading[10]. In fact, emergent reading skills—namely, written language awareness and phonological awareness—appear to be quite critical for later reading development and performance[10]. Phonological awareness encompasses a child's knowledge of spoken language (e.g., identification and manipulation of syllables) and includes phonemic awareness, one's ability to identify sounds and individual phonemes. For example, a child demonstrating phonological and phonemic awareness would correctly identify the word bat consists of three phonemes, /b/ /a/ /t/, and can become the word cat by replacing only one phoneme, /b/ with /k/. Written language awareness involves an understanding of print concepts such as letter identification and grasping that the English language is written and read from right to left[10]. As children acquire these foundational skills, they can begin to decode and read words independently. Encouraging literacy behaviors at a young age is widely recommended given their strong association with later academic achievement[10].

[1]Hernandez, D. J. (2011). Double Jeopardy: How Third-Grade Reading Skills and Poverty Influence High School Graduation. Annie E. Casey Foundation.

[2]http://gradelevelreading.net/wp-content/themes/gradelevelreading/map/index.html

[3]https://www.whitehouse.gov/the-press-office/2013/02/13/fact-sheet-president-obama-s-plan-early-education-all-americans

[4]International Reading Association and National Association for the Education of Young Children (1998), https://www.naeyc.org/files/naeyc/file/positions/PSREAD98.PDF

[5]National Reading Panel (2008), http://www.nichd.nih.gov/publications/pubs/nrp/documents/report.pdf

[6]Bus, A. G., van IJzendoorn, M. H., & Pellegrini, A. D. (1995). Joint Book Reading Makes for Success in Learning to Read: A Meta-Analysis on Intergenerational Transmission of Literacy. Review of Educational Research, 65(1), 1-21.

[7]Evans, M. A., & Saint-Aubin, J. (2005). What Children Are Looking at During Shared Storybook Reading: Evidence From Eye Movement Monitoring. Psychological Science, 16(11), 913-920.

[8]National Center for Education Statistics, https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2006071

[9] Justice, L. M., & Ezell, H. K. (2000). Enhancing children's print and word awareness through home-based parent intervention. American Journal of Speech-Language Pathology, 9(3), 257-269

[10]NELP (National Early Literacy Panel)(2008), http://lincs.ed.gov/publications/pdM/NELPReport09.pdM.

Shared reading has been touted as one of the most influential instructional techniques for both phonological awareness and written language awareness development[4,6,10]. Through shared reading sessions, emergent readers are provided the opportunity to see written language in various forms (print awareness) and draw associations between written words and letters and corresponding speech and sounds (phonological awareness)[11]. Moreover, when reading together, both adult and child have the opportunity to engage beyond the text. For example, explicitly referring to print conventions, asking book- and vocabulary-related questions, and participating in extratextual discussions can further benefit the young reader[6,9,12]. Due to shared reading's connection with emergent reading skills, several longitudinal studies have shown quality shared reading experiences to be a better predictor of later reading performance than common educational predictors such as socioeconomic status or parent education[6,13,14]. Furthermore, as shared reading is often a special time and involves individualized attention, children exposed to more home literacy experiences typically form positive associations with reading and, consequently, report greater levels of motivation for and interest in reading[14,15,16].

Unfortunately, not all shared reading experiences are created equal. Several studies have found substantial differences in the way adults conduct shared reading sessions in terms of print referencing, vocabulary explanation, reflective questioning, and other extratextual talk, which can mediate the effectiveness of the interaction[7,9,14,17]. For example, work conducted by Piasta and colleauges[18] compared the longitudinal effects of typical shared-book reading to reading with verbal and nonverbal print referencing and found significant differences in early literacy skills two years following the 30-week, randomized-controlled trial. Students receiving explicit print referencing during the study demonstrated greater achievement for reading, spelling, and comprehension than students in the control condition. For this reason, researchers and educators have invested great interest in educating adults in best-practices for shared reading as well as developing tools for facilitating optimal experiences (e.g., Levin & Aram, 2012[19]).

More recently, the potential for e-readers as shared-reading tools has garnered attention due to their similarity to printed books and their potential motivational, collaborative, and interactivity benefits. Mobile reading applications transcend shared reading by providing emergent readers with recorded storybooks in an attempt to increase shared reading experiences by capitalizing on the ubiquitous nature of mobile technology. The recordings provided by such mobile reading applications supplement shared reading time by enabling children to sit down and follow along with the reader regardless of a fluent reader's availability. Furthermore, as pointing to the print and following along with a finger has been identified as a potent print referencing technique[12], several of these mobile applications incorporate read aloud techniques that mimic this strategy by utilizing word-by-word highlighting. In turn, children are prompted to orient attention toward the text and follow along with the reader potentially spending more time focusing on the words themselves as opposed to the illustrations.

Shared-Reading Experiences

Touted as one of the more influential literacy activities for early readers, shared-reading experiences provide the opportunity for children to see written language in various forms and draw connections between written words and letters and corresponding speech and sounds. Due to shared reading's connection with emergent reading skills, several longitudinal studies have shown quality shared-reading experiences to be a better predictor of later reading performance than common educational predictors such as socioeconomic status or parent education[4,6,10].

[11] Snow, C. E., Burns, M. S., & Griffin, P. (1998). Preventing reading difficulties in young children. National Research Council. Retrieved from http://www.nap.edu/catalog/6023.htm

[12] Zucker, T. A., Ward, A. E., & Justice, L. M. (2009). Print Referencing During Read-Alouds: A Technique for Increasing Emergent Readers' Print Knowledge. The Reading Teacher, 63(1), 62-72.

[13] Sénéchal, M., & LeFevre, J. (2002). Parental Involvement in the Development of Children's Reading Skill: A Five-Year Longitudinal Study. Child Development, 73(2), 445-460.

[14] Sonnenschein, S., & Munsterman, K. (2002). The influence of home-based reading interactions on 5-year-olds' reading motivations and early literacy development. Early Childhood Research Quarterly, 17, 318-337.

[15] Baker, L., & Scher, D. (2002). Beginning Readers' Motivation for Reading in Relation to Parental Beliefs and Home Reading Experiences. Reading Psychology, 23, 239-269.

[16] Ortiz, C., Stowe, R. M., & Arnold, D. H. (2001). Parental influence on child interest in shared picture book reading. Early Childhood Research Quarterly, 16, 263-281.

[17] Wasik & Bond (2001). Beyond the Pages of a Book: Interactive Book Reading and Language Development in Preschool Classrooms. Journal of Educational Psychology, 93(2), 243-250.

[18] Piasta, S. B., Justice, L. M., McGinty, A. S., & Kaderavek, J. N. (2012). Increasing young children's contact with print during shared reading: Longitudinal effects on literacy achievement. Child

[19] Levin, I., & Aram, D. (2012). Mother–child joint writing and storybook reading and their effects on kindergartners' literacy: an intervention study. Reading and Writing, 25(1), 217-249. Development, 83(3), 810-820.

[20] Common Sense Media (2008), https://www.commonsensemedia.org/about-us/news/press-releases/new-research-from-common-sense-media-reveals-mobile-media-use-among

However, despite the unique opportunity mobile applications afford early reading development, their cost is prohibitive for many children across the country. Although the percentage of U.S. homes with mobile devices has grown significantly from 52% in 2011 to 75% in 2013[20], publishing costs and royalties associated with the majority of books and e-books persists as an access barrier for many young children. Therefore, in response to the alarming state of reading in the U.S. and the desperate need for affordable, quality reading resources, SAS proudly developed SAS Read Aloud, a freely accessible, research-based mobile application for early readers that provides access to over 50 titles in both English and Spanish.

SAS Read Aloud: Storytime, Anytime

More than just a library of books, SAS Read Aloud (Figure 1) is an impactful educational tool that teaches and guides early readers. Read Aloud provides free access to numerous books written in both English and Spanish with three unique reading modes:

Read to Me – Readers see words highlighted as the book is automatically read aloud. Readers will experience the intonation, rhythm, and stress provided by each speaker.

Help Me Read – Readers are guided through the book and control the speaker's pace. Readers focus on developing print knowledge skills and identifying words in this mode. Speakers need only record words once to enable this mode.

Read by Myself – Readers can progress through books silently and select only the words they would like to be read aloud. This traditional approach allows readers to build confidence while still providing needed support in the form of pre-recorded words

Additionally, SAS Read Aloud provides users with a recording studio in which parents, teachers, and students can record themselves reading the book of their choice. Consequently, readers can see words highlighted as the familiar voice speaks each word.

Key Design Elements

The design and development process for SAS Read Aloud is iterative in order to continuously refine the product based on the latest best-practices and research-based principles. All decisions regarding the integration and design of the embedded features are grounded on sound theoretical frameworks and supported by empirical research. These features and associated justification are detailed in the following section. Given the ever-changing nature of this field and in an effort to maintain pedagogical effectiveness, SAS Read Aloud will continue to evolve as new research and industry standards arise. Consequently, areas for future work are also included in this report.

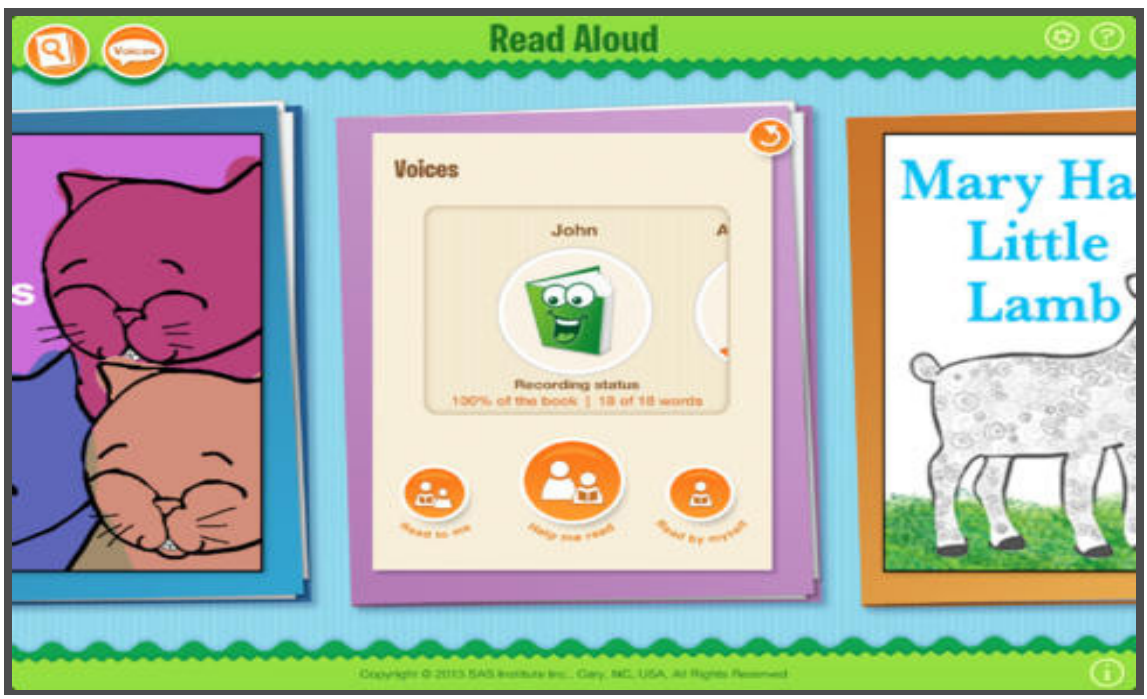


Figure 1: SAS Read Aloud user library screenshot.

Reading Modes

The defining feature of SAS Read Aloud is the integration of three reading modes which support the individual differences that arise as children develop literacy skills over time. In combination with an expansive leveled library, SAS Read Aloud's reading modes affords the instructional flexibility necessary for learning to read. Given the great deal of evidence identifying shared reading as a significant predictor of reading achievement[6], the Read to Me mode is designed to simulate and supplement traditional shared reading experiences. Furthermore, the Read to Me mode incorporates print referencing techniques, which have been shown to enhance the learning benefits during shared reading[12]. The Read to Me mode is a great tool for exposing students to fluent readings for texts above their current reading level as well as for providing an introduction to texts before students tackle the reading on their own. The Help Me Read mode was designed to scaffold learners as they being to read independently. By reinforcing English- and Spanish-language print concepts such as reading left to right, progressing by line from top to bottom, and reading word-by-word, the Help Me Read mode is ideal for emergent readers beginning to read independently. Finally, the Read by Myself mode is wonderful for students as they transition to fluent readers. The Read by Myself mode is designed to mimic traditional e-reading experiences, so students have the opportunity to select their favorite books from their personally populated library and read whenever they like.

Leveled content

As humans acquire and master skills, instructional methods and resources must continuously adapt in order to optimize learning experiences. Book features such as illustrations, sentence complexity, vocabulary, and style should be considered as children develop literacy skills. For example, early readers allocating cognitive processing to decoding text word-by-word cannot be expected to comprehend sentences and stories when reading independently. Still, during shared reading experiences, stories can be more complex as these readers are free to allocate cognitive processing toward develop concepts about print, phonological and phonemic awareness, and vocabulary acquisition. Similarly, as readers become more proficient, they should be challenged with more complex sentences, novel vocabulary, and other concepts to continue to progress. For example, illustrations have been shown to enhance text comprehension[21], benefit vocabulary acquisition[22], and increase attention[23]. However, when encouraging readers to master comprehension strategies, a highly visual text might not be ideal.

Thus, to accommodate a range of proficiencies and the acquisition of reading skills over time, SAS Read Aloud comes equipped with a large leveled library. Accordingly, users can optimize the reading experience by choosing appropriate texts based on the reader's developmental level, topic familiarity/interest, and reading mode (e.g., Read to Me, Read by Myself). More complex stories and familiar rhymes and tales make appropriate titles for early readers operating the system in Read to Me mode, whereas early reader titles allow young users the freedom to read independently in Read by Myself mode. Moreover, several titles in the SAS Read Aloud library are written at multiple levels; therefore, as readers become experienced with features of a particular book (e.g., vocabulary, plot), the reader could confidently challenge himself when reading the title at a higher level.

Wide-range of topics

With regard to depth of experience, topic interest has been shown repeatedly to play a critical role in text comprehension, and, consequently, in increasing self-efficacy and motivation for reading[24]. Previous experiences and familiarity with a given topic often foster a degree of mastery in terms of vocabulary and related schema. When a reader is confronted with a text written about a familiar topic, even a novel text, more cognitive load can be devoted to higher-order thinking as other lower-level concepts have been mastered requiring little processing[25]. With respect to the breadth of reading experiences, it is no surprise that facilitating and encouraging children to read books on a variety of topics has been shown to positively affect vocabulary acquisition[26]. Therefore, the library offered through SAS Read Aloud provides young readers with a variety of texts to choose from in terms of both genre and topic.

Word-by-word highlighting

While all shared reading experiences appear to be valuable, the utility of the session as an instructional tool is dependent on quality[6]. Research investigating eye gaze has shown that, without guidance, emergent readers generally focus on illustrations as opposed to text during shared reading sessions[7,9,12]; children appear

[21] Levin, J. R., & Berry, J. K. (1980). Children's learning of all the news that's fit to picture. ECTJ, 28(3), 177-185.

[22]Evans & Saint-Aubin (2013). Vocabulary acquisition without adult explanations in repeated shared book reading: An eye movement study. Journal of Educational Psychology, 105(3), 596.

[23]Samuels, S. J., Biesbrock, E., & Terry, P. R. (1974). The Effect of Pictures on Children's Attitudes Toward Presented Stories1. The Journal of Educational Research, 67(6), 243-246.

[24]Schiefele, U. (1992). Topic interest and levels of text comprehension. The role of interest in learning and development, 1991.

[25]Kintsch, W., Patel, V. L., & Ericsson, K. A. (1999). The role of long-term working memory in text comprehension. Psychologia, 42(4), 186-198.

[26]Cunningham, A., & Stanovich, K. (2003). Reading can make you smarter!. PRINCIPAL-ARLINGTON-, 83(2), 34-39.

to benefit more from active sessions in which the reader engages the child using various methods[7,14,17,22]. Among other techniques, print referencing, "[increasing] emergent readers' knowledge about and interest in print by highlighting the forms, functions, and features of print during read-alouds," has been a successful technique for increasing print knowledge in emergent readers[12]. Consequently, as young readers become proficient, more visual attention is placed on the text than the illustrations, which demonstrates the readers' acknowledgement of the association between the printed words and the corresponding auditory information[7]. Unfortunately, although shared reading occurs frequently in many homes, parents' use of print referencing is particularly rare[9].

SAS Read Aloud encourages print awareness by incorporating word-by-word highlighting in order to increase the amount of time readers spend focused on the actual text. As the book is read aloud, users hear and see each word individually in an effort to foster the connection between written and spoken language.

Recording studio

Story time often involves a one-on-one or one-on-few, personal interaction during which a young reader receives individualized attention from an adult or older peer. Beyond the development of early literacy skills, shared reading has been shown to help children form positive associations with literacy experiences[14,15,16]. Consequently, shared reading sessions at home have been associated with greater levels of intrinsic motivation for reading as the child grows older[14]. In order to provide shared reading experiences without compromising these beneficial personal interactions, SAS Read Aloud includes a recording studio that allows users to add their own voice to any of the provided titles (Figure 2). For example, after a quick recording session and snapshot, a grandson in California can simply tap on his London-based grandmother's face and follow along as she reads him his favorite bedtime story regardless of connectivity or time zone.

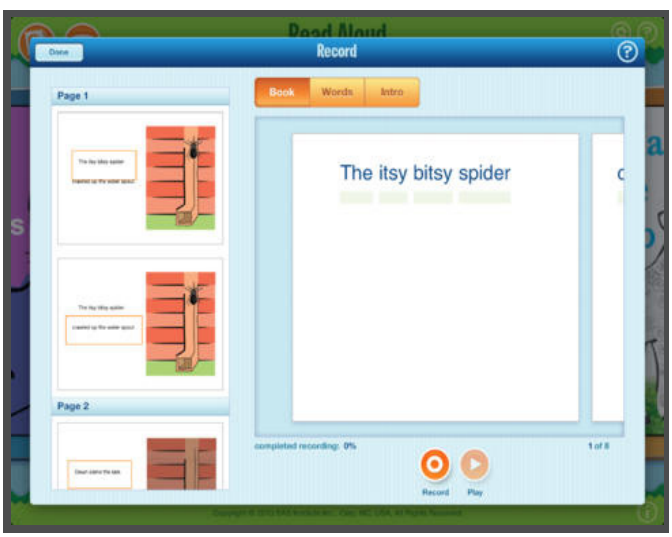


Figure 2: SAS Read Aloud recording studio screenshot..

Free to Users

As is the case with SAS Curriculum Pathways, SAS Read Aloud is proudly offered at no cost for all users. Regardless of socioeconomic status, children can access high-quality books and accompanied recordings within a research-informed user interface and avoid the high publishing costs and royalties placed on many early reading resources. At SAS we believe this level of access is particularly important given the staggering 3rd grade reading achievement gap between students of low and high socioeconomic status. In 2009, approximately 50% of 3rd grade students living in affluent neighborhoods could not read proficiently compared to 86% of high poverty students[1]. It is estimated that, by the age of three, children from low SES families hear 30 million fewer words than students from high SES families[27]. Moreover, while about 44% of US four-year-olds at or above the poverty line are read to daily, only 21% of four-year-olds living in poverty are receiving the same treatment[8]. Given the vast impact 3rd grade reading proficiency appears to have on later academic success, SAS Read Aloud provides a no-cost solution for supplementing literacy experiences for all families.

Alternate Use Cases

While SAS Read Aloud was designed as a supplement for story time, the app also supports other literacy activities. In particular, oral reading fluency skills and language learning are highlighted below.

Oral Reading Fluency

Oral reading fluency refers to an "oral translation of text with speed and accuracy"[28]. Thus, as an individual reads a text aloud, the degree to which this is done with adequate timing, pacing, prosody, phrasing, and accuracy comprises one's oral reading fluency[28,29]. While on the surface oral reading fluency might seem like a

[27] Hart, B., & Risley, T. R. (2003). The early catastrophe: The 30 million word gap by age 3. American educator, 27(1), 4-9.

[28] Fuchs, L. S., Fuchs, D., Hosp, M. K., & Jenkins, J. R. (2001). Oral reading fluency as an indicator of reading competence: A theoretical, empirical, and historical analysis. Scientific studies of reading, 5(3), 239-256.

[29] Miller, J., & Schwanenflugel, P. J. (2008). A longitudinal study of the development of reading prosody as a dimension of oral reading fluency in early elementary school children. Reading Research Quarterly, 43(4), 336-354.

negligible skill given the majority of our reading occurs silently, oral reading fluency has been shown to be a powerful indicator of comprehension and general reading competency[28]. According to Fuchs and colleagues[28], reading text aloud implies "automatically translating letters into coherent sound representations, unitizing those sound components into recognizable wholes and automatically accessing lexical representations, processing meaningful connections within and between sentences, relating text meaning to prior information, and making inferences to supply missing information" (p. 240). Therefore several approaches to early reading instruction incorporate oral reading fluency as a means for progress assessment[30].

While the recording studio embedded within SAS Read Aloud was originally designed to provide parents and loved ones with the opportunity to add their own voice to the child's story time experience, young readers are free to add their own recordings as well. Consequently, these recordings provide a great platform for children to practice their oral reading skills as well as an important perspective of the child's general reading competency. Through a simple interaction with the recording studio, children can create and save a rendition using their own voice that can be accessed later by a teacher or parent without the need for time-consuming one-on-one interactions—a notable timesaver for a teacher with a classroom of young students.

Repeated Reading

Closely related to the concept of oral reading fluency is the practice of repeated readings, a powerful technique for supporting the development of reading fluency. Just as the term suggests, repeated readers refer to a student reading and re-reading the same text. Reading expert, Timothy Rasinski[31] identifies repeated reading as an instructional method supporting fluency and general reading proficiency through factors such as automatizing word recognition and practicing appropriate phrasing. Furthermore, aside from the student reading a text repeatedly, listening along to a fluent reader reading the text repeatedly has been shown to yield similar benefits for students' fluency[31]. However, given the myriad demands placed on teachers, budgeting class time for repeated readings is almost laughable[32]. Utilizing SAS Read Aloud as a means for facilitating both independent repeated readings and listening-while-reading experiences can reduce the time commitment commanded by this form of instruction. Since every book provided by SAS Read Aloud comes downloaded with a pre-recorded fluent reading, students do not need a fluent reader sitting beside them to participate in listening-while-reading and, thanks to the ubiquity of mobile technology, repeated reading sessions can happen both in and out of the classroom. Furthermore, the three reading modes offered by SAS Read Aloud allows students to engage in repeated readings and progress through levels of independence starting with Read to Me, progressing to Help Me Read, and finally Read by Myself.

Future Work

Although SAS Read Aloud currently integrates several research-based design features, the scope of reading skills acquisition is quite expansive leaving much room for additional components. Namely, the SAS Read Aloud team aims to not only enhance the young users' experience through elements like additional vocabulary support and current library expansion, but also by incorporating instructional support for parents and other story time leaders in order to optimize the benefits of shared reading with and without the app. Lastly, as the state-of-the-field continues to advance, the SAS Read Aloud development team will continue adapting the design in order to integrate latest best-practices.

For More Information

For additional information including how to get started with SAS Read Aloud, classroom integration strategies, and the latest updates, see our blog series: http://blogs.sas.com/content/sascp/tag/8003

Download SAS Read Aloud in the App Store: https://itunes.apple.com/us/app/sas-read-aloud/id602448913?mt=8

Sign up for a no-cost SAS Curriculum Pathways account: https://www.sascurriculumpathways.com/portal/#/signup

Learn more about the mobile apps available from SAS Curriculum Pathways: www.sascurriculumpathways.com/mobile

Learn more about the resources in SAS Curriculum Pathways: https://www.sascurriculumpathways.com/portal/#/about

[30]Zutell, J., & Rasinski, T. V. (1991). Training teachers to attend to their students' oral reading fluency. Theory Into Practice, 30(3), 211-217.

[31]Rasinski, T. V. (1990). Effects of repeated reading and listening-while-reading on reading fluency. The Journal of Educational Research, 83(3), 147-151.

[32]Rasinski, T. (2006). Reading fluency instruction: Moving beyond accuracy, automaticity, and prosody. The Reading Teacher, 59(7), 704-706.

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