



**SORTEGORIES
ESSA EVIDENCE
PACKET**

**LXD RESEARCH
SORTEGORIES**

UNDERSTANDING ESSA Evidence







Evidence guidance under the Every Student Succeeds Act (ESSA) are designed to ensure that states, districts, and schools can identify programs, practices, products, and policies that work across various populations.

The Every Student Succeed Act (ESSA) requires education programs to provide evidence of effectiveness and impact in order to be federally supported. The Department of Education's Office of Educational Technology provides standards to assess the varying levels of strength of research for education products.

The categories for ESSA Evidence are: strong, moderate, and promising evidence of effectiveness, or demonstrates a rationale to be effective.

This product meets the requirements for Level 4: Demonstrates a Rationale

-  Includes a logic model based on research
-  Research documentation connects academic research studies to features in the product that support learning
-  A study is planned and/or currently underway
-  A third-party research organization has reviewed the documentation for ESSA validation



“When product designers leverage learning sciences to design their products, educators can better target instruction, and students' skills soar. Through interviews with the product designers and an evaluation of their research-informed activities, this product meets the criteria for LXD Research's ESSA Level 4 Evidence.”

– Rachel Schechter, Ph.D., Founder of LXD Research

What is Sortegories?

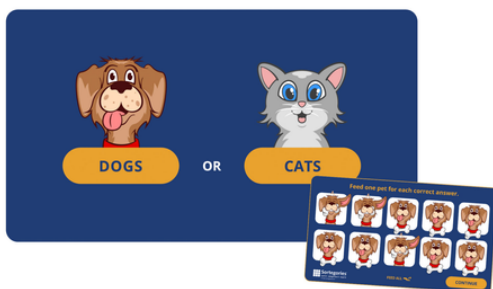
- Sortegories is a web-based practice tool built on the principle that the more you know about a word the better reader you will become.
- Sortegories currently has two levels. Each level has 6 module with 9 activities for a total of 54 activities per level.
- Sortegories provides built-in scaffolds for teachers and students to help learn important content.
- Each activity builds on the last horizontally and vertically from sound to syntax. The cumulative and interweaved practice secures learning in students' long-term memory.

Reading Practice Done Well

Sortegories provides practice designed to accelerate learning to read. How? Sortegories uses proven principles based on the science of how we learn to read. Web-based interactive activities makes it simple to practice essential literacy skills and concepts anytime, anywhere – at school, at home, even in the car.



Gamification Elements



A few features are used in all activities. These features help to create a fun, interactive experience for the users, while providing valuable feedback for educators.

Giving kids a reason to try is important. As a fun incentive, Sortegories users choose a pet — a dog or a cat — to feed for every correct answer. Users can feed one pet at a time or all of them at once. Getting answers right means more pets to feed and more fun for the users. Sortegories users receive ribbons to indicate mastery-level performance: 100% earns a blue ribbon. 90% earns a red ribbon. 80% earns a gold ribbon.



Sortegories Summary of Research Basis

Applying Learning Science Principles to Provide Practice for Learners from Sound to Syntax

What is Sortegories?

Sortegories is a web-based practice tool built on the principle that the more you know about a word, the better reader you will become. The Sortegories web-based app is designed to be used as a supplement to Tier 1 pre-K to grade 2 instruction, as well as serving as an intervention tool for grades 2 and higher. Sortegories is designed to be used in conjunction with other literacy products. What sets Sortegories apart is its focus on sound to syntax, with opportunities for practice in multiple activity-based modules that engage learners. The tool is intended to be flexible and accessible across contexts and settings. In addition to use as a classroom tool, Sortegories can be purchased for home use, homeschool use, and by tutors.

The practice tool currently has two levels, each with six modules with nine activities, for 54 activities per level. Sortegories provides built-in scaffolds for teachers and students to help learn essential content. Each activity builds on the last horizontally and vertically. The cumulative practice is intended to secure learning in students' long-term memory and contributes to automaticity from sound to syntax.



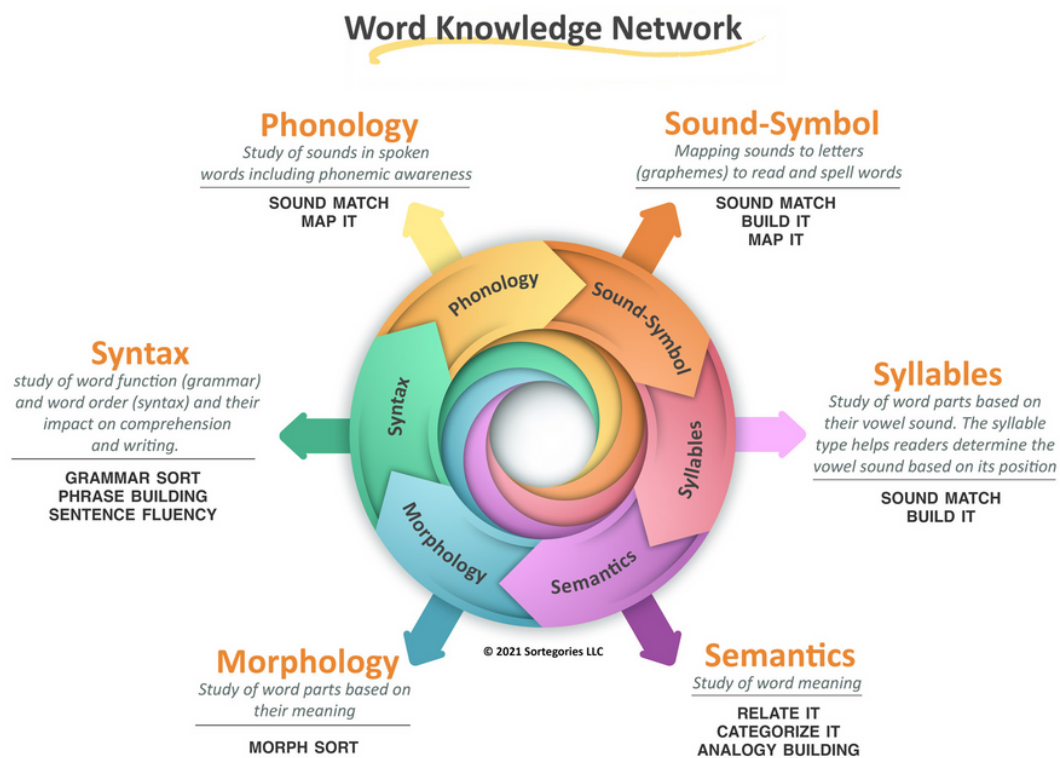
"Finally, we have an instruction program that integrates foundational reading skill instruction with other essential language skills...The Sortegories approach is clearly preferable to programs that treat each of the '5 components' of reading as separate and unrelated. I highly recommend Sortegories."

Louisa Moats, Ed.D

Author of LETRS and Language Live

Sortegories Foundational Research Basis

The Sortegories tool is designed based on the Word Knowledge Network, which guides the decisions and development of each activity in the app. The Word Knowledge Network is a multi-component model built from research describing how multiple components of word knowledge lead to improved reading fluency (Orkin et al., 2022). In particular, supporting reading fluency involves increasing students' ability to rapidly access and integrate their language knowledge with their decoding skills through practice with all aspects of word knowledge. Evidence suggests that instructing students according to this multi-component model leads to more significant growth than peers who received only phonics instruction for the same amount of time (Orkin et al., 2022).



Sortegories recognizes the importance of organizing activities in a progression that provides opportunities to learn and apply foundational skills in multiple contexts and activities. The activities are designed to vary in what learners are asked to do to harness the power of variation in practice that builds robust skills (Raviv et al., 2022). Learners have unlimited practice attempts and never get sent back or stuck at a level because of the embedded help functions they can use when they need extra support.

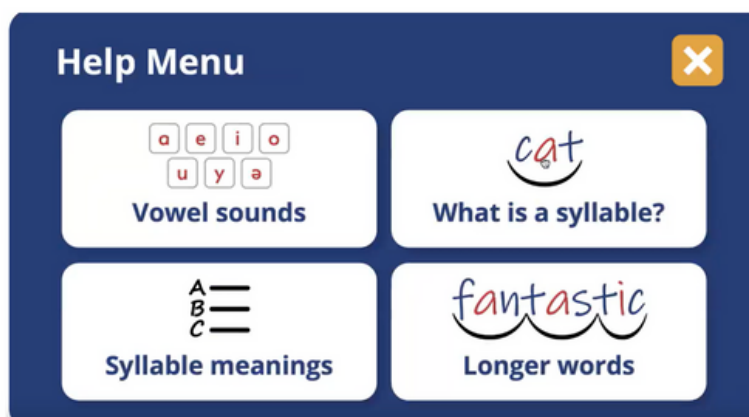
Who is Sortegories for?

Sortegories is focused on supporting emergent readers of all ages. As such, Sortegories is not tied to a specific grade level but incorporates an assessment tool that helps place learners in the most beneficial level based on their current skill level. The focus is on what you know, not how old you are.

Sortegories recognizes the importance of designing a tool with learner variability in mind (Meyer et al., 2014). The tool includes scaffolds and built-in supports that make Sortegories ideal for a variety of learners, including multilingual learners, learners with dyslexia, learners with developmental language delays, and gifted learners. These supports include point-of-use content support that is educative for teachers and students. The built-in help tools are intended to be helpful for new teachers and teachers learning the science of reading so that they can build skills that support their students' learning. These tools also make it so that tutors require little training and prep and can provide in-the-moment support based on the animated visuals with audio support provided at the point of use.

How does Sortegories work?

Sortegories designs the practice opportunities based on layers of language learning, not only on code-based learning. Words used in Row 2 (vocabulary) and Row 3 (syntax) follow the same scope and sequence as Row 1 (phonology). Words that are not decodable are read to the student.



Example: Level B Build It point-of-use help

Sortegories includes a focus on building learners' listening lexicons by incorporating both oral and written word training lessons to help learners recognize words more quickly and develop an expanded vocabulary. Practice with oral pronunciations and written forms of novel words helps learners develop and update more accurate expectations of written word forms and quickly recognize the connections between sounds and spellings (Wegener et al., 2022). Existing evidence also indicates that higher oral vocabulary knowledge helps readers generate orthographic expectations of written forms, potentially even before they first see a word (Wegener et al., 2022). Explicit vocabulary instruction effectively increases students' ability to comprehend text, with the greatest benefits evidenced by students with reading difficulties (Elleman et al., 2009).

Sortegories Foundational Research Basis

Sortegories addresses both word recognition and language comprehension, as illustrated on the Simple View of Reading graphic. These components are developed concurrently rather than sequentially from sound to syntax.



SIMPLE VIEW OF READING BASED ON GOUGH AND TUNMER (1986)

Why does Sortegories work?

Sortegories emphasizes oral and written vocabulary instruction to improve vocabulary skill, facilitate word recognition as part of the word reading process, and support passage-level comprehension. The Relate It, Categorize It, and Analogy Building activities are designed to support vocabulary growth. The purpose of Relate It is to develop depth of word knowledge by providing practice with the relationships between words such as antonyms (opposites), synonyms (same), and homophones (same sound but different meanings). In Categorize It, users sort decodable words into semantic categories. In Analogy Building, users solve word puzzles in an analogy by using knowledge of word relationships, classification, and more. Practice with this higher-order thinking skill is intended to develop comprehension skills along with accurate decoding.

Sortegories also spaces practice in the tool, which helps support retention. Spaced practice involves spreading practice opportunities across time, which helps learners remember material better long-term (Latimer et al., 2021). In Sortegories, students practice concepts across the different activities and lessons and revisit earlier concepts throughout the lessons. As lessons progress, old skills are interleaved with new skills or in new contexts, which helps learners strengthen their understanding and continue building skills.

The later modules in Levels A and B provide opportunities for learners to practice applying their vocabulary knowledge in the context of phrases and sentences. Evidence suggests that morphological interventions are particularly effective in supporting learners with literacy difficulties (Goodwin & Ahn, 2010). Sortegories includes morphological instruction in the Morph Sort activities in Levels A and B, designed to build scaffolds for all readers. In addition, research suggests that a learner's syntactic knowledge directly relates to their reading comprehension (Brimo et al., 2017).

Sortegories Foundational Research Basis

The Grammar Sort activity allows learners to build syntactic knowledge through practice determining how different words function or convey different meanings (e.g., cast as a group of people versus cast as an action when fishing). This type of practice fosters the relationship between grammar/syntax and vocabulary. Additionally, understanding word functions contributes to sentence-level comprehension, which helps readers figure out the meaning of what they read.

It is important to recognize that language use differs across contexts and to use instructional methods that help learners use grammar as a resource for meaning-making rather than as a set of rules (Schleppegrell, 2013). Sortegories includes activities based on this approach to help learners understand how to determine who is doing the action described, how ideas relate to one another within or across sentences, and what words are used to introduce and refer to a character/concept throughout a text (i.e., chains of reference). Existing research suggests that supporting practice with making inferences leads to higher inference-making and reading comprehension scores (Elbro & Buch-Iversen, 2013). Both the [Phrase Building](#) and the [Sentence Fluency](#) ([try it](#) or [watch it](#)) activities in Sortegories help learners practice determining what portions of sentences or phrases mean and make inferences based on their knowledge about comprehending sentences.

The opportunity to complete individual deliberate practice motivates children to attain mastery. Using an “I do, we do, you do” model helps ensure that deliberate practice is high quality and students feel prepared to work independently with new material (Rosenshine, 2012). Sortegories also leverages timely feedback that is affirmative, corrective, and informative, forms of feedback that best support an inclusive classroom (Hughes, Riccomini, & Dexter, 2022). The combination of knowing what to do and getting feedback on their work increases their confidence and their performance.

Another differentiating feature of Sortegories is the use of visuals with embedded mnemonics that support orthographic mapping (Shmidman & Ehri, 2010). The pair of images below is an example of how the visual for the letter “i” supports the mnemonic to enhance a student’s memory for the short and long vowel sounds. The images include arrows and underlined letters to indicate the rationale for the short vowel (as in “itch”) or long vowel (as in “ice cream”).



Assessment features within Sortegories provides both prescriptive and diagnostic information to teachers. Placement recommendations can be based on the Sortegories Spelling Screener help educators align the scope and sequence to each student's skill level. The instructor makes data-informed placement and pacing decisions, and adjust them as needed, rather than having this process solely controlled by the computer which can potentially hinder acceleration of skill development (Pimentel & Liben, 2021). Sortegories also includes two forms of module spelling mastery that could be used as in-program progress monitoring. Results inform the teacher about encoding mastery or the need for reteaching or acceleration.

How does Sortegories motivate students?

Not only is Sortegories focused on helping learners practice and develop reading skills, but the tool includes multiple game-based reward components that help engage learners and promote long-term learning. Game-based components can be especially beneficial for helping learners retain new information (Wouters et al., 2013). In Sortegories, learners with 80% or more correct questions get a ribbon for mastering the lesson. In addition, learners get to pick a digital pet (dog or cat) that they want to feed based on the points they earn completing activities. At the end of each activity, learners get to feed one pet for each answer they got correct in the lesson. In that way, even if learners do not achieve mastery in a given attempt, they still get to do something rewarding and reinforcing.

Learners are also introduced to a larger goal: for every 10,000 points they score on the app, Sortegories will make a donation to feed real rescue animals. The different levels of goals provide learners with in-the-moment task-related goals and longer-term societal-level goals. Including quests, missions, or modules such as these be especially beneficial for student learning outcomes (Huang et al., 2020).



Sortegories Authors Page

Sheryl Ferlito and Nancy Chapel Eberhardt joined forces to create Sortegories based on their previous publications— Sort It! (Sheryl) and Categories! (Nancy), hence the name Sortegories!

With Sortegories 3.0., their work has a new look, and updated alignment with the Science of Reading with the goal to accelerate literacy learning by providing systematic and explicit practice from sound to text.



Sheryl Ferlito, Ed.S.

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Association's Perspectives on Language and Literacy*

*Board member of The Reading League
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Logic Model for Sortegories

PROBLEM STATEMENT

Emerging readers need direct, explicit instruction; however, teachers often lack time and opportunity to provide integrated, embedded practice that moves learners from merely sounding out words to processing textual meaning and context. The Sortegories web-based app meets learners at their reading skill-level and provides purposeful practice that enables accelerated skill development toward mastery.

RESOURCES

What resources are or could be available?

- Digital learning platform with varied activities that align to existing curriculum
- Practice tool designed for use as intervention for Tiers 2 and 3 for learners requiring targeted practice in grades 2+
- Tech-based support designed for educators learning to implement the Science of Reading through the Science of Learning
- Interactive lessons designed for the phase of literacy learning regardless of age
- Built-in, specific feedback with immediate opportunities to try again for error correction
- Point of use, educative help features include explicit concept instruction to clarify concepts without just giving the answers
- User's Guide with background, implementation, and assessment information
- Assessment tools

STRATEGIES & ACTIVITIES

What will the activities, events, and such be?

- Application of cumulative phonics during vocabulary and syntax activities help learners make connections between sounds and letters and build depth of understanding through application to other literacy domains.
- The organization/progression of activities provides opportunities to learn and apply foundational reading skills in multiple contexts and activities (i.e., the power of variation)
- Spaced practice such that content is revisited to support long-term retention
- Mastery-oriented lesson structure encourages children to reach 80% criterion or better on each activity and Module Mastery
- Performance on mastery task indicates need for additional instruction and/or additional practice = prescriptive and diagnostic
- Help features include explicit concept instruction to clarify confusion beyond providing the answers
- Help features targeted to specific lesson content, for learners as needed
- Teachers can have students practice independently or as a whole-group activity
- Game-based elements, including choice and rewards for correct answers
- Emphasis on universal design for learning

OUTPUTS

What are the initial products of these activities?

- Diagnostic and prescriptive practice based on the use of teacher knowledge
- Spelling screener used to place students at the appropriate level in the program; spelling screener suggests placement in first row foundational skills
- Module-specific mastery task performance indicates need for additional instruction and/or additional practice
- Ability to practice activities multiple times and attain mastery
- Confirmation of correct answers and error correction facilitates accurate independent practice
- End-of-activity results printout
- LMS dashboard data lets teachers and parents see learners progress
- Learners earn rewards for moving toward mastery
- Learners feel a sense of accomplishment for making progress on their skills
- Learners recognize errors they make and how to correct them.

SHORT-TERM AND INTERMEDIATE OUTCOMES

- Sortegories supports evidence-aligned first instruction to prevent initial literacy learning failure.
- Sortegories provides practice for any reader needing to master foundational skills and language comprehension competency required to be a fluent reader.

LONG-TERM OUTCOMES AND IMPACTS

- Measurable gains in reading fluency and comprehension resulting from cumulative mastery of module-specific content
- Narrowing of the literacy knowledge gap between students who have different educational backgrounds
- Economic and social benefits of having strong literacy skills such as drop-out rate reduction and increased employment opportunities

ASSUMPTIONS

- Educators and learners have access to a device and/or internet
- Learners can access activities at school, home, or anywhere there is internet access
- Educator knowledge to align the scope and sequence of Sortegories with a core curriculum scope and sequence

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