

IMSE's Morphology Plus

Research Foundation & Logic Model



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DEMONSTRATES A RATIONALE

LXD Research Recognition for IMSE's Morphology Plus



This product has been rigorously evaluated and is hereby acknowledged for meeting the educational impact criteria of the Every Student Succeeds Act (ESSA), warranting a Level IV for "Demonstrates a Rationale." This recognition is based on its proven effectiveness in enhancing grade-level learning outcomes.

REVIEWED BY THE LXD RESEARCH EXPERT REVIEW PANEL

Rachel Schechter, Ph.D. Founder of LXD Research May 2025

DATE



Educators search for high-quality research and evidence-based solutions to strengthen grant applications, to support comprehensive and targeted schools, or to implement new programming in their schools. Evidence requirements 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.

Educational programs document their evidence of design, effectiveness, and impact in order to be eligible for federal funding. While there is no singular authority that determines a program's tier, 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 (Tier 1), moderate (Tier 2), and promising (Tier 3) evidence of effectiveness, or demonstrates a rationale to be effective (Tier 4).

This product meets the requirements for Tier 4:

- Documentation of how the product's design relates to intended outcomes, with corresponding academic, published research
- Describes the product's features and outcomes in a logic model
- 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 programs, educators can better target instruction, and students' skills soar. Through interviews with the product designers, an evaluation of their research-informed activities, and a planning of an efficacy study, this product meets the criteria for LXD Research's ESSA Tier 4 Evidence.

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

What is IMSE's Morphology+?

IMSE's Morphology+ program is a Structured Literacy curriculum and comprehensive 30-hour training course that equips educators with a deep understanding of morphology, the study of word structure, to improve students' literacy skills. Designed for teachers of grades 3–5 and those working with students who have foundational reading skills but need continued explicit instruction in vocabulary and language comprehension, the course provides hands-on instruction in morphology, vocabulary, fluency, and comprehension. Educators learn to teach essential concepts such as prefixes, suffixes, and Latin and Greek roots through systematic, evidence-based methods aligned with the science of reading and the Structured Literacy framework. The program includes flexible lesson plans, assessment tools, and ongoing progress monitoring. This ensures educators are well-prepared to deliver effective, personalized instruction for all learners, including those with dyslexia and other learning challenges.

aud	<u>aud</u> ible
struct	con <u>struct</u> ed
tract	<u>tract</u> or
rupt	e <u>rupt</u> ion

Key Components of IMSE's Morphology+

Comprehensive Curriculum

 Includes 65 lessons on prefixes and suffixes, 43 on Latin bases, and 40 on Greek bases, progressing from familiar to more advanced concepts

Multimodal Lessons

 Three-Part Drill, Morpheme Manipulation, and word and sentence application activities build morpheme awareness, fluency, and comprehension

Targeted Assessments

 Formative and summative assessments track progress, allowing teachers to adjust instruction based on student performance

Multimodal Strategies for Effective Morphology Instruction

IMSE's Morphology+ program uses **multimodal neural engagement** to enhance morpheme recognition by activating visual, auditory, and kinesthetic systems. The **Visual Drill** engages the visual processing network, the **Auditory/Kinesthetic Drill** activates auditory systems, and the **Morphemic Analysis Drill** supports both phonological and orthographic processing. The program's **explicit instruction, sequential and cumulative design**, and **scaffolded learning** ensure students build morphemic knowledge.





IMSE's Morphology+ Foundational Research Summary

Prepared by Colin Ackerman, Ph.D. & Krystina Raymond, Ph.D. Candidate

Introduction

National literacy statistics indicate a troubling trend. According to the Nation's Report Card, only 33% of fourth graders read at or above a proficient level–a 4% decline from 2019 (National Center for Education Statistics, 2024). This underscores the urgent need for strong literacy instruction to help all students become skilled readers and writers.

Structured Literacy, a research-supported approach promoted by the International Dyslexia Association (IDA), provides clear, systematic, and cumulative instruction. Structured Literacy benefits all learners, including students with learning challenges such as dyslexia (International Dyslexia Association, 2020).

The Institute for Multi-Sensory Education's (IMSE) Morphology Plus program aligns closely with the Structured Literacy Framework, offering an evidence-based approach to literacy instruction that supports all learners. IMSE's Morphology Plus 30-hour course equips educators with deep knowledge of the structure of the English language, preparing them to effectively teach a wide range of students with diverse learning needs.

This summary highlights the evidence base supporting the impact and efficacy of the Structured Literacy methodology implemented through IMSE's Morphology+ program. It begins with an overview of the program's training and implementation practices, followed by an explanation of the science of reading and IDA's Structured Literacy Framework. The Morphology+ program is examined in relation to these principles, with illustrative examples from the curriculum. Overall, this summary presents a strong rationale for the research foundations of IMSE's Morphology+ program and positions it as an excellent candidate for further efficacy and evaluation research.





Key Points

- IMSE's Morphology+ is a Structured Literacy curriculum designed for students in grades 3–5 or other students working to increase knowledge of morphology, vocabulary, or comprehension. Teacher guides include 65 lessons on prefixes and suffixes, 43 lessons on Latin bases, and 40 lessons on Greek bases, progressing systematically from more common to more advanced concepts.
- The program incorporates multimodal teaching strategies that engage multiple neural pathways, promoting deeper cognitive processing and stronger memory retention than single-modality instruction.
- IMSE recommends that all teachers complete the 30-hour Morphology+ training course before implementation. This course provides hands-on instruction in morphology, fluency, vocabulary, and comprehension and equips educators to teach students across all RTI tiers, including those with dyslexia.
- Morphology+'s instructional strategies and activities are grounded in current literacy and learning science research.
- Flexible lesson plans are available for either 60-minute or 30-minute daily instructional blocks, allowing schools to meet unique scheduling and student needs.
- The curriculum includes comprehensive assessment tools and ongoing progress monitoring. Formative assessments are conducted throughout the week, and summative assessments are conducted on Day 5, allowing teachers to refine instruction based on student performance data.



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Morphology+ Training and Implementation

Morphology+ Training

IMSE recommends that all teachers complete the Morphology+ training before implementing the program in their classrooms. The Morphology+ 30-hour course provides comprehensive, hands-on training in morphology, fluency, vocabulary, and comprehension instruction. This IDA-accredited Structured Literacy course equips educators with a deep understanding of the English language's history, layers, and structure, enabling them to effectively teach students across all three RTI tiers, including those with dyslexia.

The course is designed for general and special education teachers in grades 3–5, as well as educators working with students who have foundational reading skills in place but would benefit from continued explicit instruction in vocabulary and language comprehension. Participants will gain the knowledge and skills necessary to evaluate essential literacy components. They will also learn how to deliver Structured Literacy lessons tailored to meet the specific needs of their students.

The course emphasizes the principles of the science of reading, the history of the English language, and practical approaches to teaching reading and morphology. Educators learn how to administer various assessments and conduct comprehensive literacy lessons.

All instructors hold master's degrees, IDA/CERI certification, and have demonstrated classroom success. The course offers flexible delivery options, including traditional week-long sessions, semester formats, evening classes, weekend intensives, and bi-weekly meetings to accommodate diverse scheduling needs. In addition, IMSE now offers a fully asynchronous training model, making professional learning more accessible than ever before.

Implementation Model for Morphology+ Program

Curriculum Structure

The Morphology+ curriculum includes 65 lessons on prefixes and suffixes, 43 lessons on Latin bases, and 40 lessons on Greek bases. Skills progress systematically, with morphemes arranged from more familiar to more challenging concepts. Common affixes are typically taught before introducing Latin bases; however, it is not required to complete all affix lessons before beginning Latin or Greek instruction.



Instructional Materials

The Morphology+ curriculum provides teachers with comprehensive materials to support systematic morphology instruction. The curriculum includes a range of teacher guides, such as the *Morphology+ Affixes Teacher Guides* (Books 1 & 2), *Morphology+ Latin Teacher Guide*, and *Morphology+ Greek Teacher Guide*. These guides offer valuable information on morpheme origins and meanings and guidelines for introducing new concepts, along with application suggestions and specialized considerations for teaching English Learners. These materials are designed to deepen teachers' knowledge of morphology while providing practical strategies for classroom implementation. Each guide aligns with a specific component of the curriculum, enabling teachers to tailor instruction to meet the diverse needs of their students.

Student Materials

Student materials in the Morphology+ program are thoughtfully designed to provide hands-on, engaging with morphological concepts practice throuah structured activities. The program features custom student passages that embed target morphemes in meaningful contexts, allowing students to identify and analyze morpheme usage within connected text. Word Sum practice pages guide students in breaking words into their constituent morphemes and understanding how each part contributes to overall word meaning. Interactive notebook templates support organization and retention by helping students create personalized reference tools for morpheme meanings, examples, and visual representations. Additionally, graphic organizers, such as the Base Tree, enable students to visualize the relationships between base morphemes and their derived forms, thereby reinforcing the systematic nature of word formation.



Together, these materials foster active student engagement with morphology, offering multiple opportunities for practice, application, and reinforcement.





Lesson Components

Each Morphology+ lesson follows a structured, multimodal format that reinforces learning through a range of evidence-based practices. This section briefly explains the lessons' components. A more detailed description of each component is provided later in this paper.

The lesson typically begins with the Three-Part Drill, which is used at least three times per week to review previously taught concepts and enhance morphemic awareness. The drill has three components:

1. Visual: Students see the morpheme and state the meaning.

2. Auditory/Kinesthetic: Students hear the morpheme's meaning and spell the morpheme.

3. Morphemic Analysis: Students write word sums and state the meaning of each word.

New concepts and review may incorporate Morpheme Manipulation activities, in which students transform words by adding, removing, or substituting morphemes to explore word structure and meaning.

<u>Latin</u>

<u>rupt</u>

rupture (rupt + ure) erupt (e + rupt) corruption (cor + rupt + ion) abrupt (ab + rupt) disruptions (dis + rupt + ion + s) interrupt (inter + rupt) bankrupted (bank + rupt + ed)

<u>tract</u>

attractive (at + tract + ive) tractor (tract + or) distract (dis + tract) extract (ex + tract) subcontract (sub + con + tract) subtraction (sub + tract + ion) contract (con + tract) attracted (at + tract + ed) detract (de + tract)

The central focus of each lesson is Teaching a New Concept (Morpheme), typically introduced on Day 1. During this phase, teachers present New Concept Cards with meanings and language origins, using concrete objects or visuals to establish real-world connections and guide students in brainstorming words that contain the target morpheme. Students then create personalized morpheme cards that include meanings and examples, read passages that feature the target morpheme in context and apply the new concept through various word-level activities (such as Write Words, Word Sum Practice, Base Builder Application, and Base Tree) and sentence-level activities (like Write Sentences, Latin/Greek Base Sentences, and highlighting target morphemes within sentences while stating meanings). Teachers reinforce morphological knowledge through word and sentence dictation. In these activities, students spell words and write sentences that include target morphemes, promoting both accuracy and contextual understanding.

Fluency instruction includes structured activities such as Rapid Word Charts, which feature words based on the target morphemes. Additional fluency-building practices include repeated readings



of relevant passages and Reader's Theater, all designed to strengthen automaticity and prosody. Teachers monitor student progress regularly to inform instruction and support continued growth.

Vocabulary instruction focuses on three to five Tier II words each week. Teachers provide explicit instruction and repeated exposure to these words. Students engage in practice through morphological analysis and interactive word games that reinforce understanding and retention.

Comprehension instruction supports the development of background knowledge, understanding of language structures, and verbal reasoning. Through this integrated and systematic approach, the Morphology+ program promotes comprehensive literacy development tailored to student needs.

Supplementary Resources

Upon completing the primary course, IMSE offers valuable companion courses at no additional cost. These supplementary resources enhance educators' expertise in specialized areas of literacy instruction, providing training materials and implementation guidance for each area. The *Encoding and Decoding* Course (5 hours) provides teachers of grades three and beyond with deeper insights into phonology, decoding, and spelling patterns. For those seeking to strengthen writing instruction, the *Writing and Grammar* Course (5 hours) covers everything from basic parts of speech to complex essay construction.

These complementary courses are designed to seamlessly integrate with the primary curriculum, enabling teachers to extend their professional development and better meet the diverse needs of their students.

Implementation Models

The Morphology+ curriculum offers flexible implementation models to support diverse instructional contexts and student needs. The 60-minute lesson plan provides a comprehensive, daily approach that integrates all core components of the program, including morphology instruction, fluency, vocabulary, and comprehension, into a cohesive literacy experience. It also includes recommended assessment protocols to track student growth across these domains.

The 30-minute lesson plan offers streamlined implementation for settings with brief instructional windows. This model focuses on essential morphology components and can be tailored to address specific instructional needs. Teachers can prioritize certain aspects of the curriculum based on student assessment data, creating a modified schedule that maximizes impact within shorter time frames.



Both models maintain the systematic and explicit instruction essential to the Morphology+ approach while offering the flexibility to meet a variety of classroom demands.

Assessment and Progress Monitoring

Assessment and progress monitoring in the Morphology+ program include both formative and summative measures designed to guide instruction and track student growth. Initial assessments help teachers determine appropriate starting points within the curriculum, ensuring instruction matches student needs.

Formative assessments are embedded throughout the week, including word dictation, sentence application, and morpheme identification activities. Practice assessments on Day 4 prepare students for summative evaluations on Day 5, which assess mastery of target morphemes.

When available, IMSE recommends using standardized tools such as Acadience Reading K–6 or DIBELS 8th Edition to monitor general reading fluency in connected text. While these assessments do not directly measure students' application of morphological knowledge, they can provide useful insights into overall reading development.

Sample Name:	
Morphology Weekly Assessment	
1. Morpheme Meaning	
inter : between or among	
ject : to throw or lie	
ion : act of, state of, or result of	
2. Word Sum	
inject	
in + $ject$ \rightarrow _inject	
Morphemic Analysis: to throw in	_
reject	
re + ject → reject	
Morphemic Analysis: throw back	_
subjected	
sub + $ject$ + ed \rightarrow <u>subjected</u>	
Morphemic Analysis: thrown under	_
objection	
ob + ject + ion → objection	
Morphemic Analysis: the act of throwing against	
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To assess vocabulary development more specifically, educators can use cloze procedures or multiple-choice formats that require students to demonstrate their understanding of morphological structure and word meaning. These formats offer a more targeted measure of students' ability to apply morphological knowledge in context.

These assessment practices provide teachers with ongoing data to adjust instruction, form flexible groups, and document student progress in morphological awareness and application.

Special Considerations

The Morphology+ curriculum includes special considerations to ensure accessibility and effectiveness for students with diverse learning profiles. For English Learners, the program



recommends utilizing cognates that share similar morphemes across languages, providing guided brainstorming with visual supports, and offering translations when possible to build meaningful connections. The program emphasizes building shared knowledge and highlights the importance of writing instruction, offering recommendations for supplementary activities that reinforce morphological understanding through writing tasks. These considerations support effective implementation across diverse student populations and instructional contexts.



The Science of Reading and Structured Literacy Foundation

Defining The Science of Reading

The science of reading is a comprehensive body of research that examines how students learn to read, integrating findings from various disciplines such as cognitive psychology, linguistics, and education. Reading is a complex cognitive process involving multiple skills, including phonological awareness, decoding, word recognition, and comprehension (Snow, 2014). Central to this science is the understanding that phonemic awareness (the ability to identify and manipulate sounds in words) and phonics (the relationship between letters and sounds) are foundational skills for reading success (Shankweiler & Fowler, 2004).

The science of reading emphasizes the importance of explicit, systematic instruction in foundational literacy skills, often delivered through Structured Literacy approaches, which is essential for developing strong reading skills (Moats, 2020). It supports teaching methods aligned with how the brain processes written language, highlighting the critical roles of the phonological system, orthographic mapping, and semantic memory in developing skilled readers (Ehri, 2014).

The IDA Structured Literacy Framework

The International Dyslexia Association (IDA) Structured Literacy framework provides a research-based approach to effective and comprehensive literacy instruction, including students with dyslexia and other reading challenges. It emphasizes explicit, systematic, and sequential teaching of reading and writing skills.

The framework integrates key components of language such as phonology, orthography, morphology, syntax, semantics, and discourse. It employs multimodal methods that engage multiple neural pathways for deeper cognitive processing and retention.



Structured Literacy is also diagnostic and responsive, meaning that educators continuously assess students' progress and adjust teaching strategies to meet individual needs. The IDA has endorsed this framework as an evidence-based best practice for teaching literacy to students with diverse learning profiles (International Dyslexia Association, 2020).



The Critical Role of Morphology in Literacy Development

Morphology plays a crucial role in literacy development by helping students understand the meaningful components of words, such as base words, prefixes, and suffixes. IMSE's Morphology+ program is grounded in several key theories that collectively support effective literacy instruction and reinforce the significance of morphological awareness:

- The Simple View of Reading emphasizes that reading comprehension results from decoding and language comprehension (Gough & Tunmer, 1986). Automaticity in recognizing morphemes supports the decoding process by enhancing accurate word recognition while simultaneously strengthening language comprehension through vocabulary development. When students understand morphological structures, they not only read words more efficiently but also access deeper meaning connections, thereby supporting both critical components of the Simple View of Reading.
- **Scarborough's Reading Rope** illustrates how multiple strands of language and reading skills intertwine to develop proficient literacy, with morphology contributing to vocabulary and language comprehension (Scarborough, 2001).
- Ehri's Four Phases of Word Recognition describes the progression of word reading from pre-alphabetic to consolidated alphabetic phases, where morphological awareness becomes increasingly essential in decoding unfamiliar words (Ehri, 1995).

Research consistently underscores the critical importance of morphology in literacy development, directly impacting decoding, spelling, and comprehension. As Marcia Henry (2019) explains, "Since morphemes are the smallest units of meaning in words, and meaning (comprehension) is the goal of reading, morphemes are of prime importance" (p. 23). Morphology enables students to decode and comprehend complex words while making meaningful connections across vocabulary.

Morphological knowledge is one of five key aspects of word knowledge, alongside orthographic, phonological, semantic, and syntactic knowledge. All these components contribute to the neurological reading circuit (Katzir et al., 2008). For students to develop fluency, they must achieve automaticity in not only retrieving letter patterns and their corresponding sounds but also in accessing word meanings, roots, and affixes. Morphology plays a foundational role in this process, linking form to meaning and equipping students with the tools to understand how words function in language.

Research highlights that instruction for students in third grade and beyond should transition from a focus on phonology to word study, fluency, vocabulary, and morphology (Shanahan, 2020).



Morphological awareness is particularly crucial for readers who have foundational reading skills in place but continue to need explicit instruction in vocabulary and language comprehension. It enables them to decode and comprehend text more effectively (Bowers et al., 2010; Goodwin & Ahn, 2012).

The English language, a morphophonemic system, reflects its Anglo-Saxon, Latin, and Greek origins. Approximately 90% of English words with more than one syllable are Latin-based, and most of the remainder are Greek-based (Rasinski et al., 2009). Morphological instruction provides students with the tools to understand word structure, unlock meaning, and expand their vocabulary.

Research consistently supports the value of morphological instruction. Kieffer & Lesaux (2007) found that morphological awareness enhances vocabulary and reading comprehension, particularly for students in urban classrooms. Additionally, derivational morphological awareness has been linked to academic vocabulary and comprehension skills, especially among linguistically diverse learners (Kieffer & Box, 2013).

Morphological awareness also plays a vital role in literacy acquisition for English Learners. Studies show that these learners develop morphological awareness and vocabulary knowledge through parallel processes. This suggests that explicit morphological instruction can support bilingual students' reading comprehension and vocabulary development (Kieffer & Lesaux, 2012).

Teaching morphology alongside phonology and orthography ensures that students develop the skills necessary for decoding unfamiliar words, understanding spelling patterns, and achieving reading proficiency. Morphology provides a critical foundation for long-term literacy success at all stages of learning.



IMSE's Morphology+ Program: The "What" Components

Morphemes as a Core Component in Morphology+

Morphemes, the smallest units of meaning in language, play a crucial role in the Structured Literacy framework (Carlisle, 1995). Understanding morphemes, including base words, prefixes, and suffixes, enables students to break down complex words, thereby supporting reading and writing (Nunes & Bryant, 2006). Research has shown that morphemes help students better understand word structure and meaning, ultimately improving literacy outcomes (Moats, 2020).

Relationship to Vocabulary Development and Background Knowledge

Explicit instruction in morphology plays a significant role in vocabulary development (Kirby & Bowers, 2018). Teaching students the meanings of morphemes enables them to understand new words, which enhances their vocabulary acquisition. IMSE's Morphology+ curriculum gives students strategies to determine the meanings of unfamiliar words, which benefits their reading comprehension. Vocabulary knowledge is crucial for all students, including students learning English as an additional language and students with language difficulties.

IMSE's Morphology+ and the Brain

IMSE's Morphology+ program uses a structured, multimodal approach to teach morphology. When teaching morphology through multimodal techniques, the brain's neural systems work in concert. creating stronger and more interconnected memory representations than instruction single-modality would produce (Castles & Nation, 2006; Dehaene, 2009; Perfetti & Stafura, 2014). The instructional design acknowledges that integrating these components leads to increased learning outcomes; therefore, activities and lessons focus on various components.





Integration with Other Literacy Domains

IMSE's Morphology+ program strategically integrates multiple literacy domains to create a comprehensive approach that enhances both reading and writing development across grade levels. The program's explicit connection to orthographic conventions helps students recognize how morphological knowledge applies to spelling patterns beyond simple phoneme-grapheme relationships, enabling them to understand why words like "medicine" and "medical" maintain consistent spelling in the base word despite pronunciation changes, which simultaneously improves their spelling accuracy and word recognition efficiency (Moats, 2020).

This morphological foundation also provides crucial support for understanding a text's content, as IMSE's Morphology+ program systematically teaches students to analyze complex academic vocabulary by breaking multisyllabic words into meaningful units. This skill allows them to decode with greater ease, which enhances overall reading comprehension (Bowers et al., 2010). When students can confidently analyze and understand complex vocabulary, they can better focus on comprehending the author's message rather than struggling with individual word meanings.

Furthermore, the program enhances students' sentence grammar comprehension by establishing clear connections between word structure and syntactic function. It helps students recognize how suffixes signal parts of speech and grammatical relationships, which research indicates improves their ability to process complex sentence structures and understand the logical relationships between ideas in text (Nagy et al., 2014). This integrated approach creates powerful cross-domain literacy benefits that support students as they encounter increasingly sophisticated academic language throughout their educational journey.

Supporting Word Recognition and Spelling through Morphological Knowledge

Morphological awareness significantly enhances word recognition and spelling skills by equipping students with powerful strategies for analyzing unfamiliar words (Carlisle, 1995). Understanding morphemes helps students recognize familiar word parts within complex or new vocabulary, functioning as cognitive anchors that facilitate more efficient decoding and comprehension. This knowledge also enables students to apply consistent spelling patterns for morphemes even when traditional phoneme-grapheme relationships vary across different words, providing a reliable framework for spelling that extends beyond sound-letter correspondences.

When encountering multisyllabic words, morphologically aware students can strategically break down these complex words into manageable units—prefixes, base words, and suffixes—making both reading and spelling more accessible and systematic. Additionally, recognizing how adding prefixes and suffixes can transform both a word's meaning and grammatical form gives students insight into the structure of the English language itself, allowing them to deduce the meaning of



unfamiliar words by analyzing their component parts and understanding the logical patterns of word formation that govern English vocabulary.

Contribution to Reading Comprehension and Composition Skills

Morphological knowledge directly contributes to reading comprehension by enhancing multiple aspects of the reading process that work together to support text understanding (Kirby & Bowers, 2018). When students encounter unfamiliar words, their knowledge of morphemes allows them to strategically analyze word structures, breaking down complex vocabulary into recognizable prefixes, base words, and suffixes to infer likely meanings without relying entirely on context or external references. This morphemic approach also facilitates systematic vocabulary development as students recognize patterns across word families. It allows them to grasp relationships between words like *predict, prediction, predictable*, and *unpredictable*, expanding their vocabulary network through meaningful connections rather than isolated memorization.

As morphological analysis becomes increasingly automatic, students recognize words more efficiently. This reduces the cognitive load during reading and frees up mental resources for higher-level comprehension processes, such as making inferences, monitoring understanding, and connecting ideas across texts. Morphological awareness also enhances students' syntactic processing. Understanding how suffixes transform a word's grammatical role (e.g., changing from the verb *predict* to the noun *prediction*) helps readers accurately interpret sentence structures and relationships between words. This is crucial for comprehending complex text constructions.

The multifaceted influence of morphological knowledge lays the foundation for stronger reading comprehension, which extends across content areas and text complexity levels. As students' morphological awareness strengthens, they not only recognize word meanings but also improve their understanding of how words fit into larger linguistic structures. This supports both vocabulary growth and syntactic comprehension. In writing morphemes, the orthographic processor plays an essential role in encoding morphemes accurately. It helps students link sounds to written symbols, facilitating the correct spelling of morphemes.

The Morphemic Analysis portion of instruction focuses on the meaning processor, allowing students to break down and analyze the meaning of morphemes. By understanding how individual morphemes contribute to the overall meaning of a word, students can unlock new vocabulary and improve their understanding of complex texts. This dual focus on both the orthographic and meaning processors ensures that students not only recognize morphemes accurately but also understand their significance, leading to deeper comprehension and enhanced reading proficiency.





IMSE's Morphology+ Program: The "How" Components

Multimodal Neural Engagement

Through its multimodal approach to morphological instruction, IMSE's Morphology+ curriculum activates multiple interconnected neural networks. By engaging the visual word form area of the brain for orthographic processing alongside auditory regions for phonological representation, the program creates robust neural connections critical for morpheme recognition (Dehaene, 2009). This simultaneous activation of diverse brain systems facilitates deeper encoding and enhances memory consolidation pathways.

IMSE's methodology acknowledges the complex interplay between semantic networks and executive function systems involved in morphological awareness, recognition, and retention. As students interact with morphemes through varied instructional techniques, they develop stronger neural representations that span multiple processing centers in the brain. Creating high-quality lexical representations with strong form-meaning connections is essential for effective word recognition and comprehension (Perfetti & Stafura, 2014).

Multimodal neural engagement is demonstrated in the Morphology+ program through the Three-Part Drill. The drill begins with a Visual Drill, with the teacher showing a morpheme card, prompting students to spell or state the morpheme and its meaning. This activates the visual processing network (occipital lobe and ventral stream pathways) to process the written morphemes (Dehaene & Cohen, 2011).

Next, during the Auditory/Kinesthetic Drill, the teacher states the meaning of a morpheme—a crucial semantic cue—and then students must retrieve and write the corresponding morpheme, followed by verbalizing both the spelling and meaning. This process creates powerful connections between semantic understanding and orthographic representation, as students must link the concept (meaning) directly to its written form (spelling). This integration engages both the semantic processing networks responsible for meaning and the orthographic processing networks responsible for spelling patterns while simultaneously activating the auditory processing networks as students listen to and produce language (Hickok & Poeppel, 2007).

Finally, the teacher presents students with words containing known morphemes, and the students write word sums and state the meaning of the word based on the morphemes through the Morphemic Analysis Drill. This activates the phonological processing network that connects speech sounds to written symbols (Pugh et al., 2001) and the orthographic processing system in the visual word form area of the brain that recognizes familiar spelling patterns (Price & Devlin, 2011).





Three-Part Drill

Materials Needed:

review cards, dry-erase board and marker, prepared multisyllabic words with known morphemes

Do this at least 3x per week with known or previously taught morphemes.

1. Visual:

- a. (T) Shows morpheme card(s).
- b. (S) Spell (or state) the morpheme(s) and the meaning(s).

2. Auditory/Kinesthetic:

- a. (T) States the meaning(s) of the morpheme(s).
- b. (S) Write the correct morpheme(s) and state the meaning(s).

3. Morphemic Analysis:

- a. (T) Presents students with word(s) containing known morphemes.
- b. (S) Write word sum(s) and state the meaning of the word(s) based on the morphemes.

Explicit Instruction Methods for Morphology

As described at the start of this summary, IMSE's Morphology+ curriculum utilizes explicit instruction methods that focus on the direct teaching of morphemes through structured lessons and daily routines. This approach ensures students understand the structure and function of morphemes, starting with simple concepts and advancing to more complex ones. Explicit instruction is essential for students to develop a deep understanding of word structure and its relationship to word meaning, supporting reading and spelling (Moats, 2020).

The program follows a direct and systematic approach, focusing on teaching students the building blocks of words in a structured manner. The instruction progresses from the most fundamental concepts to more complex ones, ensuring students have a solid foundation (Bowers et al., 2010). This systematic approach helps students gradually build their knowledge of morphemes, ensuring no gaps in learning.

Sequential and Cumulative Design

IMSE's Morphology+ program is designed sequentially and cumulatively. This design allows for continuous reinforcement, crucial for long-term retention and automaticity in word recognition (Nagy et al., 2014).

The program begins by teaching students simple morphemes, such as common prefixes and suffixes, and gradually introduces more complex morphological structures. This approach allows



students to gain confidence with easier tasks before moving on to more challenging ones, helping them integrate new concepts with their prior knowledge (Fisher & Frey, 2013).

The program's methodology acknowledges the complex interplay between semantic networks and executive function systems involved in morphological awareness, recognition, and retention. As students interact with morphemes through varied instructional routines, they develop stronger neural representations that span multiple processing centers in the brain. This neurobiological approach supports both surface-level decoding and deeper semantic processing, establishing the cognitive architecture necessary for proficient reading and comprehension.

Scaffolded Learning and Targeted Feedback

The curriculum supports the gradual release of responsibility model by initially providing direct instruction, then moving to guided practice, and finally allowing students to independently apply their morphological knowledge (Fisher & Frey, 2013). Morphology+ lessons begin with whole-group activities like the Three-Part Drill and then progress to independent activities, including written expression and reading comprehension, using the aligned passages included in the program. This structure empowers students to take ownership of their learning, gradually building confidence and proficiency in recognizing and using morphemes (Moats, 2020).

Data-Driven Assessment and Instruction

IMSE's Morphology+ curriculum includes assessments that ensure teachers are informed of each student's progress, including strengths and areas for targeted support, in a timely manner. The program assessments allow educators to track students' development in morphological knowledge by recording their progress on specific morpheme concepts. These assessments are both formative and summative. Formative assessments are given at the start of instruction to help the teacher organize instructional priorities appropriately. Summative assessments are given at the end of instruction to refine instructional methods and identify areas for further practice. This ensures that students build mastery over time.





Conclusion

IMSE's Morphology+ program is firmly grounded in the science of reading principles and closely aligned with the International Dyslexia Association's Structured Literacy framework. The research evidence presented throughout this summary demonstrates the substantial impact of morphological awareness on multiple aspects of literacy development. From enhanced decoding and word recognition to improved vocabulary acquisition, spelling proficiency, and reading comprehension, morphological knowledge serves as a powerful tool for literacy advancement across diverse student populations.

IMSE's Morphology+ program effectively harnesses this research base through its sequentially designed instruction that builds from simple to complex concepts, multimodal teaching techniques that engage related neural networks, and data-driven assessment practices that ensure mastery-oriented progress. By making the structural patterns of language explicit and providing systematic instruction in word formation, IMSE's Morphology+ curriculum offers students strategic approaches to decode unfamiliar words, infer meanings, and develop vocabulary knowledge.

National literacy statistics continue to highlight concerning trends in reading proficiency. IMSE's Morphology+ offers evidence-based solutions that build on the foundational components of reading development. The strong theoretical foundation, alignment with established literacy frameworks, and incorporation of evidence-based instructional practices make IMSE's Morphology+ program a valuable resource for educators committed to improving student literacy outcomes.

IMSE's Morphology Plus Logic Model

PROBLEM STATEMENT

Reading proficiency in the U.S. is declining significantly, with only 33% of fourth graders meeting NAEP standards in 2022—a 4% drop from 2019. Many educators lack the specialized training and instructional approaches needed to address diverse learning needs, including students with learning challenges. Research consistently demonstrates that structured, systematic literacy instruction is essential for developing strong reading and writing skills across all learner profiles. IMSE's Morphology+ program aligns with the Structured Literacy Framework and offers an explicit, systematic approach to literacy instruction. The accompanying IMSE Impact Morphology Plus 30-hour professional development course equips educators with specialized knowledge and instructional strategies in morphology, fluency, vocabulary, and comprehension to effectively support diverse learners, including those with dyslexia and other learning disabilities.

RESOURCES

What resources are available?

Core Instructional Components

Five-Part Lesson Structure: Three-Part Drill

- Visual
- Auditory/Kinesthetic
- Morphemic Analysis

Teaching a New Concept (Morpheme)

- New Concept Card
- Application of New Concept
 - \circ Words
 - Write Words
 - Word Sum Practice
 - Base Builder Application
 - Base Tree
 - Sentences
 - Write Sentences
 - Latin/Greek Base Sentences
 - Highlight target morphemes within sentences and state meanings

Fluency

Vocabulary

- Specific Word Instruction
- Word Learning Strategies
- Word Consciousness

Comprehension

- IMSE's Comprehension Framework
- Morphology Student Passages
- Reciprocal Teaching



RESOURCES

Materials & Tools

- Morphology+ Training Manual
- Morphology+ Procedural Reference Flip Chart
- Morphology+ Affixes Teacher Guide Book A-1
- Morphology+ Affixes Teacher Guide Book A-2
- Morphology+ Latin Teacher Guide
- Morphology+ Greek Teacher Guide
- Digital OG+ Spelling Teacher Guide (Grade 3+)
- Morphology+ Morpheme Card Pack
- Morphology+ Weekly Assessment Template
- Morphology+ Originals
- Morphology+ Assessment Originals
- Morphology+ Student Passages
- Morphology+ Training Practice Packet
- Access to IMSE's online resource portal
 - Notebook template
 - Editable morpheme cards
 - Morphology+ Weekly Assessment Template
 - Morphology+ Word Sums and Answer Key

- Access to IMSE LAB
 - New concept slides
 - Customizable Three-Part Drill Slides
 - Daily Student Work Collection
- *Writing and Grammar* Manual, Digital Course, and Practice Packet
- *Encoding and Decoding* Digital Course and Practice Packet
- Student-Centered Teaching Course
- The Reading Comprehension Blueprint: Helping Students Make Meaning from Text by Nancy Hennessy (2021)
- Vocabulary Handbook by Linda Diamond and Linda Gutlohn (2019)

Professional Development:

30-hour comprehensive training with IMSE Certified Instructors who:

- Hold a minimum of a master's degree in education or a related field
- Are IDA/CERI certified
- Are certified master instructors in Orton-Gillingham methodology
- Have classroom implementation experience

Training Options:

• Live in-person, live virtual, and asynchronous options available

Additional course options:

- Specialist Practicum
 - OG+ Course prerequisite
 - OG+ Practicum prerequisite

Additional course options continued:

- 12.5-hour Phonological Awareness Course
- Science of Reading Course
- Intervention and Support Course
- Fidelity Course
- Administrator Course
- Educational Assistant Course
- Dyslexia Overview Course

Interactive training components:

- Collaborative learning activities
- Breakout practice sessions
- Knowledge check quizzes
- Lesson planning and presentation
- Structured homework assignments
- Frequent response opportunities





RESOURCES

Post-Training Support Offerings

- Implementation coaching and technical support
- Access to IMSE's online resource portal
- District-wide implementation planning support
- Customized consultation services

STRATEGIES AND ACTIVITIES

What will the activities, events, and such be?

- Morphology+ Assessments help determine a starting point and guide the teacher's instruction
- Teachers monitor performance, provide feedback, and create targeted practice opportunities
- Tailored lessons with direct, systematic instruction using a gradual release model
- Multimodal morpheme learning (visual, auditory, and kinesthetic)
- Practice identifying morphemes for decoding
- Knowledge of morphemes to aid in encoding
- Morphemic analysis to determine word meanings
- Reading practice using IMSE's Student Passages
- Vocabulary Routine with explicit vocabulary instruction and word-learning strategies
- Comprehension Framework
- Reader's Theater

OUTPUTS

What are the initial products of these activities?

- Students apply morphology skills at the word and sentence level
- Weekly assessments to track morpheme learning progress
- Fluency and accuracy practice using IMSE's Student Passages
- Pre- and post Morphology+ Assessments to gauge progress
- Students demonstrate word knowledge through morphemic analysis in 3PD, dictation, and passages, emphasizing context, morphology, and usage.



SHORT-TERM AND INTERMEDIATE OUTCOMES

- Ability to read and spell high-frequency prefixes, suffixes, Latin and Greek bases
- Strengthened morphological knowledge for breaking apart words
- Ability to transfer knowledge of morphemes across words and apply knowledge of morphemes to new, unknown words
- Improved skill in manipulating morphemes
- Increased comprehension
- Enhanced ability to analyze words and determine meaning
- Increased reading fluency (speed and accuracy in connected text)
- Expanded academic and content-area vocabulary
- Development of effective strategies for determining word meanings

LONG-TERM OUTCOMES AND IMPACTS

- Stronger spelling skills through morpheme understanding
- Increased reading fluency (greater word reading accuracy and words correct per minute)
- Stronger word-level comprehension and sentence-level comprehension, supporting better text-level understanding
- More students reading and spelling at grade level
- Enhanced knowledge of English's morphophonemic system
- Expanded vocabulary
- Stronger reading comprehension
- More students achieving broader academic benchmarks

ASSUMPTIONS

Successful implementation requires administrative support, adequate training time, and sufficient funding. Teacher motivation and buy-in are essential for program success, as is maintaining program fidelity across classrooms. Schools must have access to all required materials and resources and dedicate time to regular assessment and progress monitoring to ensure the program achieves its intended outcomes.



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