

Why is Morphological Knowledge and Instruction Important for Adult Education Learners?

Elizabeth L. Tighe and Gal Kaldes, Georgia State University

Acknowledgment: Support for this research digest was provided by a Language and Literacy seed grant (Georgia State University). The authors are currently developing a morphological and etymological intervention for adult education learners and a professional development for instructors.

Morphological knowledge refers to an individual's understanding of the structure and meaning of words based on their familiarity with morphemes (i.e., word parts, including prefixes, suffixes, and bases). This knowledge is crucial to developing various aspects of language and literacy to successfully function in 21st century education and workplace settings, including vocabulary, spelling, phonological awareness, word reading, and reading comprehension. This research digest provides a brief review on why morphological knowledge is important to literacy for adult education learners. Next, we briefly describe the literature on adult morphological and etymological instruction and provide examples for how to integrate them in the classroom with adult education learners. We conclude with future directions and resources for research and educational practice.

Why is Morphological Knowledge Important to Literacy?

Recognized theoretical frameworks of literacy emphasize that awareness of morphemes and processing morphological information in text supports reading comprehension and other literacy skills, including word reading and vocabulary (Levesque et al., 2021; Perfetti & Stafura, 2014). Moreover, research with adult education learners has found that morphological knowledge is related to better word reading (Tighe et al., 2019), vocabulary (Fracasso et al., 2016), and reading comprehension skills (Tighe & Schatschneider, 2016a, b). Morphological knowledge can help adult education

learners because morphemes enhance multiple reading skills (Kirby & Bowers, 2017). Below we list examples of how morphological knowledge can serve as a powerful strategy to enrich these skills:

Vocabulary: Students can use morphemes to break down and infer the meaning of unfamiliar words. For example, the word “unhelpful” contains a <un> prefix (i.e., opposite of), “help” base, and <ful> suffix (i.e., having characteristics of), which helps decipher the meaning (i.e., to be lacking in assistance or support). Students can extend their vocabulary knowledge by identifying word families, or groups of words with a common base. For example, knowing the base word “fort” can extend to other related words, such as “forts,” “fortitude,” and “fortify.”

Phonological Awareness: Some words undergo phonological (i.e., sound) changes when adding a suffix to form a more complex word (e.g., “magic” to “magician”). Increasing learners' cognizance of prefixes, suffixes, and bases in both oral language and written words can help students recognize and manipulate sounds within words (e.g., “magic” has a /k/ phoneme that changes to a /ʃ/ phoneme in “magician”).

Pronunciation: Recognition of morphological word boundaries (e.g., mis/hap) can help learners increase reading fluency with correct pronunciation and prosody (i.e., appropriate reading expression). For example, learners who encounter the word “mishap” would likely recognize the <mis> prefix, which helps them avoid reading the <sh> as a digraph (as in “shell”).

Spelling: Consider the word “action” and the rationale behind why this word contains a <t> rather than the <sh> digraph to represent the /ʃ/ phoneme (Bowers & Bowers, 2018). Once the learner is prompted to break down the word “action” into its morphological components (act + ion), the reason for using <t> to represent /ʃ/ becomes transparent because <t> is part of the base word “act.”

Reading Comprehension: Morphological knowledge enhances learners’ ability to parse unfamiliar words, which improves vocabulary and word reading. This skill can free up additional cognitive resources (e.g., working memory) that are needed for processing longer sentences and paragraphs. Ultimately, comprehension is the goal of reading and morphological knowledge can support many aspects that feed into processing and understanding text.

As illustrated above, increasing learners’ morphological knowledge can boost several reading-related skills, which makes instruction in morphological knowledge multi-faceted with many different approaches and types of morphological content. We will next review the scant but existing literature on different types of morphological intervention studies conducted with adult education learners and the benefits of incorporating etymological with morphological instruction.

Morphological Instruction

A few intervention studies have used morphological instruction in settings with adult education learners. For example, Alamprese et al. (2011) observed improvement in adult foundational education students’ decoding skills after teaching a reading class that incorporated elements of morphological instruction. Gray et al. (2018) reported overall gains in students’ civics vocabulary after teaching etymology, morpheme, and syllable structure. Similarly, Durgunoglu et al. (2021) used morphological instruction with adult English as a Second Language learners and reported improvement in their vocabulary and comprehension.

Instructors of adult education learners can incorporate morphology into literacy instruction to target multiple literacy outcomes (see Resources below for more information). For example, Alamprese et al. (2011) developed an enhanced decoding curriculum for adult foundational education students with low to intermediate

reading skills that incorporated morphology-focused activities. Many of the activities asked students to identify morphemes in words that were embedded in adult-centered reading materials. Many of the activities also focused on common spelling conventions, such as dropping the final, silent <e> when adding a suffix (e.g., live + ing → living). Gray et al. (2018) used a semantic mapping organizer to help students analyze morphologically complex civics vocabulary. Specifically, the authors asked students to perform various steps, such as read aloud a target word and its definition (e.g., “alienable” means something that’s transferable to another owner), write and read aloud the root of the target word (e.g., Latin *alienus*), write and read aloud a synonym for the target word (e.g., transferable), read aloud and write a word sum for the target word (e.g., alien + able → alienable), read and write other words with the same base of the word (e.g., alienate), and segment the syllables in the word (e.g., a- li- en- a- ble).

One approach to literacy instruction that has not been deeply explored with adult education learners is the use of word matrices to analyze morphologically complex vocabulary words. A word matrix is a graphic organizer that arranges prefixes and suffixes around a common base (Bowers & Bowers, 2018; Bowers & Kirby, 2010). Students use the matrix to build words that share the same base (e.g., “act,” “action,” “inactive,” “actionable”). Additionally, using word matrices considers multiple literacy skills that are required for reading successfully, including orthography, phonology, and semantics (Bowers & Bowers, 2018; Ng et al., 2022). More evidence with using matrices is needed for adult education learners; however, studies with children suggest that word matrices can be an effective tool to help target learning morphologically complex vocabulary (e.g., Devonshire et al., 2013; Freeman et al., 2014).

Incorporating Etymological with Morphological Instruction

Etymology (i.e., word origins or root words) is one of the primary dimensions of the English spelling system, along with morphology and phonology (Hegland, 2021; Venezky, 1999). Some recent intervention studies with adults who require support with literacy skills have begun to incorporate etymological with morphological instruction

to increase their vocabulary and reading strategies (Gray, 2019; Gray et al., 2018; Trexler et al., 2023). For example, Gray (2019) conducted a pilot study that found that adults who were taught Greek and Latin roots outperformed adults who were only taught syllable types on a norm-referenced word reading test.

Morphology instruction can leverage etymology to help adult education learners in a variety of ways. First, etymology can facilitate understanding of the graphemes, or spelling patterns, that do not follow conventional spelling rules in English. For example, a student who struggles with spelling or reading words may wonder why “schemer,” someone who plots or plans in a devious manner, is spelled with the <ch> instead of the <k> grapheme. Etymological examination of the word reveals that “schemer” is spelled with a <ch> because the base word is “scheme,” which is derived from Greek. The digraph <ch> is a common Greek representation that corresponds to the phoneme /k/.

Second, incorporating etymology with morphological instruction can help students decipher the meanings of unfamiliar words. Students who examine the etymological origin of a word discover that the meaning of the root is oftentimes similar to its modern day use in English. As an example, the base of the word “mortician,” a person who plans and arranges funerals, is spelled <mort> and comes from the Latin root *mortuus*, meaning “death.” Students can use this information to draw connections to a family of words that have the same base spelling and share a common root (e.g., “mortality,” “mortal,” “immortal”). A few recent studies have used etymological with morphological instruction to enhance the academic vocabulary skills of developmental college students who require support with literacy skills and attend developmental reading classes (Hastings & Trexler, 2021; Trexler et al., 2023). In combination, these studies have found that the students demonstrated progress with using etymological strategies to read and unpack the meanings of unfamiliar words and also reported that they enjoyed using the strategies to learn more about unknown words.

Finally, teaching etymology can help adult education learners build their vocabulary knowledge even though not all words in modern day English retain the meaning of the root from which they evolved. Let us revisit our example of the Latin root *mortuus*. The word “mortify”

(i.e., to feel shame or embarrassment) and the word “mortician” are from the same word family because they both come from Latin root *mortuus* and have the same base spelling <mort>. However, it is not obvious that these words are related because “mortician” is more closely related in meaning to the root *mortuus*, or death, than the word “mortify.” Although the word “mortify” has evolved from the meaning of its root, having discussions with students about the relationship between “mortify” and its etymological origin can provide valuable context that encourages retention and understanding. For example, the hyperbole, “I was so embarrassed, I wanted to die!” may give students additional context for why “mortify” evolved from the root *mortuus*. Similarly, many words in modern day English have evolved in meaning due to the use of figurative language (e.g., metaphors or idioms). A few studies with adults who are English language learners have used an etymology strategy called “etymological elaboration,” which encourages students to retain the meaning of idioms by drawing connections between the idioms to the linguistic origins of the words (Bagheri & Fazel, 2010; Soleimani & Azizmohammadi, 2015). These studies have found that teaching etymology helps adult English language learners remember the meanings of idioms.

Brief Summary and Where Do We Head Next?

In summary, increasing adult learners’ morphological knowledge can positively influence a host of reading-related skills, including phonological awareness, spelling, decoding, vocabulary, and ultimately reading comprehension. There have been limited but some interventions that include morphological components, including etymology, and these have been found to be effective for adult education learners (adult literacy students and developmental college students). There is a strong need for more studies, developed materials, and interventions to understand the effectiveness of morphological and etymological instruction with adult education learners. Many of the studies described above are initial pilot studies with small samples of adults who vary in reading skills, are short in duration, and include varying morphological and etymological approaches and content. Therefore, it is critical to further understand for

whom, what types of approaches and content, and the intensity of instruction needed to be considered effective.

In addition, there is a strong need for enhancing professional development and providing resources and support for adult education instructors. A recent, informal poll at the 2023 Coalition on Adult Basic Education conference suggested that 80% of adult education instructors do not feel confident and/or do not have the

tools needed to teach morphological knowledge (Tighe et al., 2023) This theme is also echoed in research with different educational professionals primarily in K-12 settings (e.g., Fumero & Wood, 2023), who report feeling only moderately confident in their abilities to apply their knowledge of morphological concepts. Thus, much more work is needed to help adult education instructors to feel confident and able to teach morphological and etymological strategies in class.

Resources

The resources below provide examples of how to integrate morphology and/or etymology into instruction to enhance adults' literacy skills.

1. Making Sense of Decoding and Spelling: An Adult Reading Course

https://lincs.ed.gov/publications/making_sense

Description: This curriculum is open access and was used in Alamprese et al. (2011) to investigate the effects of enhanced decoding instruction on word reading outcomes of beginning to intermediate adult readers. It contains exercises that teach common spelling conventions and breaking down words into their morphological parts (e.g., prefixes, bases, suffixes).

2. Morpho-Phonemic Analysis Boosts Word Reading for Adult Struggling Readers

<https://link.springer.com/content/pdf/10.1007/s11145-017-9774-9.pdf>

Description: Gray et al. (2018) is open access and provides a description of how the authors conducted their morpho-phonemic intervention with a group of students in adult foundational education (see pp. 85-86). In particular, Figure 1 on page 86 provides a visual of the morpho-phonemic semantic mapping approach, which also integrates etymology.

3. Cultivating Possibilities Through Literacy

https://human.libretexts.org/Courses/Delaware_County_Community_College/Cultivating_Possibilities_through_Literacy

Description: This guidebook is open access and was used in Trexler et al. (2023) to teach reading strategies to college students enrolled in developmental reading classes. Students unpack vocabulary in texts by learning about the dimensions of English orthography (morphology, phonology, etymology). Students also learn to use metacognitive strategies to reflect on their comprehension of the texts.

4. Word Matrix Resources

a. *Beyond Phonics: The Case for Teaching Children the Logic of the English Spelling System*

<https://cpb-eu-w2.wpmucdn.com/blogs.bristol.ac.uk/dist/b/403/files/2017/10/Beyond-Phonics-The-Case-for-Teaching-Children-the-Logic-of-the-English-Spelling-System.pdf>

Description: This open access paper provides examples of word matrices and word sums (see pp. 128-131). Table 2 on page 129 provides definitions of linguistic terms, including the difference between a morpheme and a root (i.e., the etymology or origin of a word). These concepts are important to distinguish in order to integrate morphological with etymological instruction.

b. *Building a Matrix from Word Sums*

<https://youtu.be/cL5-lH3KVII?si=gxDCbjyktWPBqSQV>

Description: This video shows a worked example for how to build a word matrix. Instructors can use this tool to help students build word families with other words that are connected in structure and meaning.

References

- Alamprese, J. A., MacArthur, C. A., Price, C., & Knight, D. (2011). Effects of a structured decoding curriculum on adult literacy learners' reading development. *Journal of Research on Educational Effectiveness*, 4(2), 154-172. <https://doi.org/10.1080/19345747.2011.555294>
- Bagheri, M. S., & Fazel, I. (2010). Effects of etymological elaboration on the EFL learners' comprehension and retention of idioms. *Journal of Pan-Pacific Association of Applied Linguistics*, 14(1), 45-55.
- Bowers, J. S., & Bowers, P. N. (2018). Progress in reading instruction requires a better understanding of the English spelling system. *Current Directions in Psychological Science*, 27(6), 407-412. <https://doi.org/10.1177/0963721418773749>
- Bowers, P. N., & Kirby, J. R. (2010). Effects of morphological instruction on vocabulary acquisition. *Reading and Writing*, 23(5), 515-537. <https://doi.org/10.1007/s11145-009-9172-z>
- Devonshire, V., Morris, P., & Fluck, M. (2013). Spelling and reading development: The effect of teaching children multiple levels of representation in their orthography. *Learning & Instruction*, 25, 85-94. <https://doi.org/10.1016/j.learninstruc.2012.11.007>
- Durgunoglu, A. Y., Sagar, A., Fagan, K. E., & Bruek, A. (2021). Improving the comprehension and vocabulary skills of English language learners with content integrated language instruction for adults. *Adult Literacy Education*, 3(1), 34-48.
- Fracasso, L. E., Bangs, K., & Binder, K. S. (2016). The contributions of phonological and morphological awareness to literacy skills in the adult basic education population. *Journal of Learning Disabilities*, 49(2), 140-151. <https://doi.org/10.1177/0022219414538513>
- Freeman, N. D., Townsend, D., & Templeton, S. (2018). Thinking about words: First graders' response to morphological instruction. *The Reading Teacher*, 72(4), 463-473. <https://doi.org/10.1002/trtr.1749>
- Fumero, K., & Wood, C. (2023). Morphological knowledge and self-efficacy of SLPs and educators. *Communication Disorders Quarterly*, 45(1), 53-63. <https://doi.org/10.1177/15257401221122677>
- Gray, S. H. (2019). Linking root words and derived forms for adult struggling readers: A pilot study. *Adult Literacy Education*, 1, 19-36.
- Gray, S. H., Ehri, L. C., & Locke, J. L. (2018). Morpho-phonemic analysis boosts word reading for adult struggling readers. *Reading and Writing: An Interdisciplinary Journal*, 31(1), 75-98. <https://doi.org/10.1007/s11145-017-9774-9>
- Hastings, K., & Trexler, M. (2021). Structured word inquiry: A critical literacy framework for educators. *Interchange: A Quarterly Review of Education*, 52, 273-296. <https://doi.org/10.1007/s10780-021-09430-8>
- Hegland, S. S. (2021). *Beneath the surface of words: What English spelling reveals and why it matters*. Kendore Learning.
- Kirby, J. R., & Bowers, P. N. (2017). Morphological instruction and literacy: Binding phonological, orthographic, and semantic features of words. In K. Cain, D. L. Compton, & R. K. Parrila, (Eds.), *Theories of reading development* (pp. 437-462). John Benjamins Publishing Company.
- Levesque, K. C., Breadmore, H. L., & Deacon, S. H. (2021). How morphology impacts reading and spelling: Advancing the role of morphology in models of literacy development. *Journal of Research in Reading*, 44(1), 10-26. <https://doi.org/10.1111/1467-9817.12313>
- McCutchen, D., Stull, S., Herrera, B.L., Lotas, S., & Evans, S. (2014). Putting words to work: Effects of morphological instruction on children's writing. *Journal of Learning Disabilities*, 47(1), 86-97. <https://doi.org/10.1177/0022219413509969>
- Perfetti, C., & Stafura, J. (2014). Word knowledge in a theory of reading comprehension. *Scientific Studies of Reading*, 18(1), 22-37. <http://doi.org/10.1080/10888438.2013.827687>
- Soleimani, F., & Azizmohammadi, F. (2015). The effect of etymology of an additional language on Iranian EFL learners' vocabulary retention. *Indian Journal of Fundamental and Applied Life Sciences*, 5(S2), 1449-1458. <http://www.cibtech.org/sp.ed/jls/2015/02/jls.htm>
- Tighe, E. L., & Fernandes, M. A. (2019). Unraveling the complexity of the relations of metalinguistic skills to word reading with struggling adult readers: Shared, independent, and interactive effects. *Applied Psycholinguistics*, 40(3), 765-793. <https://doi.org/10.1017/S0142716419000018>
- Tighe, E. L., Kaldes, G., Sun, C. D., McCool, S., & Rozier, D. (2023). *Morphological instruction and assessments for adult literacy learners*. Symposia presented at the annual Coalition on Adult Basic Education Conference in Atlanta, Georgia.
- Tighe, E. L., & Schatschneider, C. (2016a). A quantile regression approach to understanding the relations between morphological awareness, vocabulary, and reading comprehension in adult basic education students. *Journal of Learning Disabilities*, 49(4), 424-436. <https://doi.org/10.1177/0022219414556771>
- Tighe, E. L., & Schatschneider, C. (2016b). Examining the relationships of component reading skills to reading comprehension in struggling adult readers: A meta-analysis. *Journal of Learning Disabilities*, 49(4), 395-409. <https://doi.org/10.1177/0022219414555415>
- Trexler, M., Hastings, K., & Tighe, E. L. (2023). Increasing the literacy abilities of developmental college students through integrated orthographic instruction. *Journal of College Literacy and Learning*, 48, 33-56.
- Venezky, R. L. (1999). *The American way of spelling: The structure and origins of American English orthography*. Guilford Press.