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Practitioner Article

Phonetic Continuum Matrix: A Research-Informed Approach to Selecting Decodable Words for Phonics Instruction

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ABSTRACT

This article presents a sequential system for selecting words for early decoding instruction. We have named our model the *Phonetic Continuum Matrix* due to its intersection with the developmental continua of phonemic awareness and phonics. Our purpose for creating this model is to offer teachers an efficient and sequential method of selecting words for word making, word breaking, sorting, and other activities and games during phonemic awareness and phonics instruction. We begin this article with a literature review to explain "why" we teach explicit phonemic awareness and phonics skills during early literacy instruction. Following that discussion, we explore the research used to create our sequential system for selecting words. Next, we present the *Phonetic Continuum Matrix* and share recommendations for using the model when designing early literacy instruction.

KEYWORDS

phonics; phonemic awareness; early literacy instruction; research-based instruction

It was early September at Lamar Elementary and first-grade teacher Mr. Reyes sat at the front of his inclusive classroom of 16 students. He knew through observations and universal screening data that seven students needed support in orally blending phonemes to form spoken single-syllable words, while nearly all of his students needed support in decoding consonant-vowel-consonant (CVC) words. During today's whole group gathering, he decided to combine these two skills by asking his students, "What word am I saying, /m/ /a/ /n/?" His students quickly replied with, "man". He then asked his students to help him spell the word *man*, and they did so without hesitation. He repeated this exercise with the words *sit*, *bat*, and *dig*. His students were once again successful with the word sit, but many of them struggled with the words *bat* and *dig*. How could this be? Mr. Reyes ended the exercise by asking his students to read the same four words. Once again, his students were successful with the words *man* and *sit*, but they demonstrated more difficulty with the words *bat* and *dig*—leaving Mr. Reyes wondering why his students experienced more difficulty with some words and less difficulty with others.

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Although the opening vignette is fabricated, we have heard teachers share similar experiences and ask the same questions as Mr. Reyes. Perhaps the information that Mr. Reyes is missing in his teaching materials includes a word list that is more nuanced than those traditionally provided in phonological awareness and phonics lists – a word list that takes linguistic research into account. For example, the reason the children in Mr. Reyes's class may have experienced difficulty in blending the phonemes in *man*, but not *bat* is because the letter m makes a continuous vocal sound, and the letter b is a stop plosive. In this article, we present a sequential system for selecting words for early decoding instruction. We have named our model the *Phonetic Continuum Matrix* due to its intersection with the developmental continua of phonemic awareness and phonics knowledge. Our purpose for creating this model is to offer teachers an efficient and sequential method of selecting words to use for word making, word breaking, sorting, and other activities and games during phonemic awareness and phonics instruction. We begin this article with a literature review to explain "why" we teach explicit phonemic awareness and phonics skills during early literacy instruction. Following that discussion, we explore the research that was used to create our sequential system for selecting words. Next, we present the *Phonetic Continuum Matrix* and share recommendations for using the model when designing early literacy instruction. For the purpose of printing, the *Phonetic Continuum Matrix* has been split into two Figures—those being Figures 1 and 2.

Literature Review

Recent publications that are focused on phonemic awareness and phonics are largely influenced by the current attention being given to the science of reading (Grote-Garcia & Ortlieb, 2023). That recent attention led us to initially set out to find within the available research a tiered system for evaluating the difficulty of decodable words. For this, we utilized our university database and an internet search engine, employing search terms such as *decodable word list*, *phonics word difficulty levels*, *decodable reading words by level*, and *word difficulty continuum for phonics*. Although we found various lists of decodable words, these resources did not provide the tiered structure or detailed progression we were seeking. This absence in the literature prompted us to develop the *Phonetic Continuum Matrix to* fill this gap.

The literature review that follows explores "why" we teach explicit phonemic awareness and phonics skills in elementary classrooms. Also explained is the research used to formulate our sequential system for selecting decodable words. The reviewed research spans a total of 66 years, with publications as early as Templin's 1957 publication detailing language development. We felt it to be important to revisit classic studies within our literature review because the relationship between phonemic awareness, phonics, and overall reading success has been established for several decades and many of those earlier studies contributed significant findings that guided the formation of our model.

The Why

Lindsey and colleagues (2020) remind us, that in order to read an alphabetic language, such as English, "students must possess secure knowledge of the alphabetic principle (i.e., speech sounds are represented by combinations of letters in the alphabet) as well as the ability to aurally separate the distinct sounds (phonemes) that make up words" (p. 159). The latter part of this statement refers to phonemic awareness. Phonemic awareness is "the ability to focus on and manipulate phonemes [or the smallest sounds] in spoken words" (Liberman et al., 1974). During phonemic awareness instruction, students might be asked to isolate, blend, segment, or manipulate phonemes

(Collet, 2021). In the opening vignette, we read that Mr. Reyes asked his students, "What word am I saying, /m/ /a/ /n/?" His students blended the stated phonemes together and said the word "man". In that exchange, Mr. Reyes's students demonstrated the phonemic awareness task of blending phonemes. No graphemes (i.e., letters or letter combinations used to represent the sounds) were used in that example—as is the case for phonemic awareness tasks (Lindsey et al., 2020; Kilpatrick, 2015, NRP, 2000).

Why do we teach phonemic awareness? Research has established that phonemic awareness skills can be a predictor of students' early reading skills because it provides a window into students' ability to learn sounds that can then be used for decoding (Boyer & Ehri, 2011; Kilpatrick, 2015; Share, 2004). In fact, Boyer and Ehri (2011) and Share (2004) emphasized that being able to segment words into phonemes when entering kindergarten is one of the strongest predictors of reading in kindergarten and first grade. Cassano (2018) explained this predictable relationship by stating, "although [phonemic awareness] does not involve print directly, there is a link between [phonemic awareness] and decoding in alphabetic writing systems, because letters represent phonemes in words" (p. 12). Cassano (2018) further explained that "without an awareness of the sound structure of words at the phoneme level, children do not understand how print works and thus can fail to deploy phonics instruction that teachers provide" (p. 12). Thus, one reason we teach phonemic awareness is that children must be aware of phonemes in order to map them to their associated graphemes (i.e., the letter or letter combinations that represent individual phonemes in print).

Additional research has established that many children who are struggling with decoding and spelling also have deficits in phonemic awareness (Spear-Swerling, 2016). In fact, phoneme blending impacts students' decoding abilities, while segmenting phonemes impacts students' spelling skills. Those two relationships are proven through a vast body of research that spreads across decades (Bond & Dykstra, 1967; Ehri et al., 2001; Fox & Routh, 1984; NICHD Early Child Care Research Network, 2005; NRP, 2000). The opening vignette illustrates that finding. Mr. Reyes's students looked at the printed word *sit* and used their knowledge of grapheme/phoneme relationships to decode that word. This process required students to recognize the three graphemes *s*, *i*, *t*, and to map those graphemes to the phonemes /s/, /i/, /t/—in doing so, students were applying their phonic knowledge. Once students identified the three phonemes connected to the printed letters, they then blended those phonemes together to pronounce the printed word. The students' successes in blending those phonemes to pronounce the printed word are dependent upon their skills in phoneme blending. Had Mr. Reyes's students only applied their phonetic knowledge and struggled with phoneme blending, they would not have been able to state the printed word. Instead, their response would have remained as the isolated phonemes of "/s/—/i/—/t/". In a reversed manner, phoneme segmenting impacts spelling because in order to spell a word that is not memorized, we must segment the phonemes of the spoken word and then map those phonemes to their associated graphemes (Ball & Blachman, 1991).

Not only do teachers of early reading need to teach phonemic awareness skills explicitly; they also need to teach explicit phonics skills—but, why? In addition to phonemic awareness being an important and necessary skill for reading an alphabetic language, decades of research have also established that phonetic knowledge is highly important (NRP, 2000; Stahl et al., 1998; Torgerson et al., 2018). Phonics is the method of teaching phoneme/grapheme relationships. Students' capacity to decode unfamiliar words is impacted by their ability to recognize graphemes, map those graphemes to phonemes, and then blend those phonemes together to identify the printed word (Lindsey et al., 2020). However, there is an even larger picture. Research has identified that students' abilities to decode words (which is influenced by their phonemic awareness and phonic knowledge) have direct impacts on their abilities to read text fluently (Ecalle et al., 2020; NRP, 2000; Saha et al., 2021), and to comprehend them (Gough & Tunmer, 1986; Kieffer & Christodoulou, 2020; Kim, 2015; Scarborough, 2001).

Continuum of Difficulty

Research has established that decoding skills are dependent upon the reader's phonetic knowledge as well as the reader's ability to blend phonemes into words (Bradley & Bryant,1983; Hulme et al., 2012; Share, 2011). When creating our sequential system for selecting words for early decoding instruction, we revisited the research establishing the continuum of difficulty for phoneme blending and phonetic knowledge; by doing so, we developed the sequence found in the *Phonetic Continuum Matrix* (see Figure 1 and Figure 2). That research is reviewed in this section—establishing the scientific foundation on which the model was built.

Phoneme Blending. The difficulty of phoneme blending tasks can vary from easy to more difficult depending upon the number of phonemes (i.e., fewer phonemes are easier, while more phonemes are harder) and the type of phonemes featured. The English language has 44 phonemes that are placed into two categories: consonants and vowels (Foorman, 2023). Freeman and Freeman (2014) remind us that consonant phonemes are closed (i.e., airflow is obstructed), can be stopped (i.e., cannot be elongated) or continuous (i.e., can be elongated), and can be voiced (i.e., require a vibration of the vocal cords) or voiceless (i.e., do not require vibration of the vocal cords). Furthermore, vowels are open (i.e., shaped by the mouth, but unobstructed), continuous, and voiced. Following a review of relevant literature, Mesmer (2019) summarized the continuum of difficulty for words used in phonemic awareness tasks and organized those findings based on two-phoneme and three-phoneme words. First, two-phoneme words beginning with a vowel phoneme, such as "at" and "on", are the easiest to hear; followed by two-phoneme words beginning with a continuant consonant (e.g., knee, so, me), and then two-phoneme words beginning with another consonant (e.g., be, doe, tea,). For three-phoneme words, the pattern is similar with words beginning with continuant consonants being easiest (e.g., man, nap, sat) and words beginning with other consonants being more difficult (e.g., bag, dig, top). Next, children typically develop the ability to segment and blend four-phoneme words with initial blends (e.g., clap, stop, trap), followed by four-phoneme words with final blends (e.g., felt, last, jump), and lastly five-phoneme words with initial and final blends (e.g., blend, clasp, stomp). These research findings directly influenced the formation of the *Phonetic Continuum Matrix* and are displayed in the columns, moving from left to right, of Figure 1 and Figure 2.

Phonetic Knowledge. Decoding requires phonemic awareness and phonetic knowledge because readers must "use phonics principles to break the word into small chunks and then blend those chunks back together into recognizable words" (Lindsey et al., 2020, p. 161). Research points to phonics instruction needing to be explicit (meaning the teacher tells students the skill they are learning) and systematic and sequential (meaning easier skills are taught and mastered first before moving on to more difficult skills; Mesmer & Griffith, 2005). This instruction may begin as early as prekindergarten. In this section, we explore the continuum of development for phonics skills. We have arranged the discussion to first explore the development of letter knowledge, which is then followed by a discussion of how word decoding develops.

Letter Knowledge. Decades of research have documented that preschoolers' letter knowledge (specifically their ability to name letters), is highly correlated to their later word-reading ability (Bond & Dykstra, 1967; Tunmer et al., 1988; Wagner et al., 1994). In light of this correlation, we use this section to review significant research findings that have provided insights into the development of letter knowledge—the reason being that these findings informed the development of the *Phonetic Continuum Matrix*.

According to research, children have more difficulties learning letters with hard-to-hear sounds and letters that are connected to more than one sound (Treiman et al., 1998). Researchers have identified that the sounds of *acrophonic* printed letters, or letters whose names carry information about their sound (e.g., the name of letter m ending with /m/), are easier to learn than non-acrophonic letters (e.g., h, w, x; Cardoso-Martins et al., 2011; Piasta & Wagner, 2010; Share, 2004; Treiman & Rodriguez, 1999; Treiman et al., 1998). Also, Huang et al. (2014), McBride-Chang (1999), and Treiman et al. (1998) presented evidence that children learn the sounds of letters whose names are pronounced in consonant-vowel order (e.g., b, d) easier than those pronounced in vowel-consonant order (e.g., s, f).

Although research has largely identified sounds of acrophonic printed letters to be easier to learn, Castles and colleagues (2009) remind us that this relationship "may be confounded to some degree with phonemic awareness ability because benefiting from the sound information provided by the letter name presumably requires that children are sufficiently phonologically aware to be able to successfully segment the relevant phoneme" (p. 69). This highlights the importance of considering individual differences in phonemic awareness when developing effective literacy instruction. Therefore, educational strategies should be tailored to address both the phonological and phonemic awareness skills of learners.

Word Reading. Similar to phonemic awareness instruction, there is a general sequence for teaching phonics to increase word reading skills. Following a review of relevant literature, Lindsey and colleagues (2020) summarized that general sequence. Most phonics curricula "move from teaching students patterns with one-to-one correspondences in single-syllable words (e.g., *big*, *hat*, and *tin*) to teaching two-to-one (e.g., bath, see, she) and three-to-one correspondences in single-syllable words (e.g., *eat*, *eight*, and *shoot*)" (Lindsey et al., 2020, p. 169). Overall, the literature review provided by Lindsey et al. (2020) supports the following to be a suggested order for phonics instruction (from easy to difficult): short vowel word families (e.g., -at, -am, -it), initial consonant digraphs (e.g., ph-, sh-, th-), final consonant digraphs (e.g., -ch, -ck, -sh), initial consonant blends (e.g., bl-, fr-, st-), and final consonant blends (e.g., -st, -mp, -nd). After reading words with short vowels, students typically learn words with long vowels (e.g., the silent e), vowel digraphs (e.g., ai, oa, ee), vowel diphthongs (e.g., oy, oi, ow as in *cow*), complex consonants (e.g. silent letters such as kn, soft/hard c, soft/hard g, and trigraphs), syllable division rules (e.g., VC|CV, V|CV), and morphemic analysis (e.g., prefix "un" means "not").

Many speech and language researchers have purported that there is an order in which children master consonant clusters/blends (Higgs, 1968; McLeod et al., 2001; Smit et al., 1990; Templin, 1957). Dodd (1995), Dyson (1988), Paul and Jennings (1992), and Watson and Scukanec (1997) found, in their studies of young children, that word-final consonant blends (e.g., -mp, -nd, -ps) appear in language before word-initial clusters do (e.g., st-, tw-, pl-); however, Werfel and Schuele (2012) and Lindsay (2020) recommend the opposite. Also, children usually acquire consonant blends that consist of stop and liquid sounds (e.g., br-, pl) before they acquire blends with fricative and liquid sounds (e.g., fr-, sl-Ingram, 1976; Powell, 1993; Smit et al., 1990; Smith, 1973; Templin, 1957; Watson & Scukanec, 1997). More specifically, Barlow (2004) contended that, because sounds range on a continuum from least sonorous to most sonorous (in order from least to most sonorous: stops, fricatives, nasals, liquids, glides), consonant clusters whose sounds are further apart on this continuum (e.g. wr) are easier than those whose sounds are closer together (e.g., sc-, sp-). Another way of explaining this is that clusters whose sounds are formed in the same place of articulation are more difficult to pronounce than those whose sounds occur in different parts of the mouth. This is partly because during pronunciation, the child can feel their mouth move and see it when looking in a mirror. It seems the most difficult blends to hear and pronounce are final blends that contain a nasal (/n/) right before a voiceless phoneme (e.g., -mp, -nt) or a voiced phoneme (e.g., -nd, -ng; Treiman et al., 1995). Considering which clusters occur with the most frequency is important in forming a recommended sequence of instruction (Groff, 1971-72). We have utilized these findings to inform our model in terms of when these clusters/blends might be taught. This information is illustrated in the rows of Figure 1 and Figure 2, with the simplest skills at the top and increasing in complexity moving downward.

Theoretical Framework

The *Phonetic Continuum Matrix* is designed to be utilized with children at specific stages of word reading development. When crafting the matrix, we drew insights from Ehri's (2005) word reading stages and Bear et al.'s (2020) *Words Their Way* framework. In this section, we explore these two staging frameworks to explain the "how" and "when" of employing the *Phonetic Continuum Matrix* in the design of early literacy instruction. By aligning instructional practices with these frameworks, educators can better tailor their approaches to the individual needs of students at various stages of reading development. This ensures that instruction is both developmentally appropriate and research-based, enhancing the overall effectiveness of literacy education.

According to Ehri's (2005) four stages of word reading, word knowledge evolves through distinct phases. Those stages are the pre-alphabetic, partial alphabetic, full alphabetic, and consolidated alphabetic stages. Each phase operates on a continuum determined by the mastery of specific word knowledge skills. In the pre-alphabetic stage, children rely on visual cues and specific contexts to derive meaning, emphasizing visual input over letter sounds and drawing connections to environmental print. Notably, the *Phonetic Continuum Matrix* does not address the pre-alphabetic stage, as it commences with Ehri's subsequent stage, the partial alphabetic stage.

The partial alphabetic stage incorporates letter names and sounds, enabling children to use phonetic cues for comprehension. The *Phonetic Continuum* Matrix initiates at this stage, featuring acrophonic printed letters and one to two phoneme words in the top left corner of the model (refer to Figure 1). Moving to Ehri's third stage, the full alphabetic stage, children utilize all letter sounds in reading and engage with graphemic knowledge. As the *Phonetic Continuum Matrix* progresses downward and across (from the top-left toward the bottom-right), it closely aligns with Ehri's full alphabetic stage, encompassing consonant digraphs, consonant blends, vowel digraphs, and vowel diphthongs.

In the consolidated alphabetic stage, Ehri's fourth stage, children strategically incorporate morphological and syllabic elements into their reading, utilizing chunks or clusters within words and word families to enhance fluency (e.g., the child recognizes that "happiness" consists of the rood word "happy" and the suffix "-ness"). The *Phonetic Continuum Matrix* does not include Ehri's consolidated alphabetic stage since the matrix is centered on the intersection of phonetic knowledge and phonemic awareness. Readers in this advanced stage analyze "chunks" of words rather than individual phonemes and graphemes. Consequently, the matrix focuses on earlier stages of reading development where phonetic and phonemic skills are foundational, providing a structured approach to building these essential skills before students reach the more advanced stages of analyzing word patterns and morphemes.

Bear et al.'s *Words Their Way* framework (2020) expands upon Ehri's stages and offers developmental timelines for each stage of reading—therefore, it was also consulted as the *Phonetic Continuum Matrix* was being designed. The initial stage, the emergent stage, typically occurs between the ages of two and five years old. During this stage, children make prephonetic attempts at reading and writing as they synthesize experiences with six crucial concepts. These concepts encompass language concepts and vocabulary, which provide foundational experiences with language and accumulated background knowledge. Alphabetic awareness leads children to an understanding of print and the literacy input derived from their environment. Phonological awareness increases a child's ability to blend, segment, and delete sounds when creating new words, and rhythmic activities contribute to mastery of syllabication. Finally, children must have an automaticity with familiar words, creating sight words in context through COW-T, or Concepts of Words in Text. Similar to the connections made between Ehri's (2005) stages and the *Phonetic Continuum Matrix*, the top left corner of Figure 1 relates to Bear et al.'s early stage.

The remainder of the *Phonetic Continuum Matrix* relates to Bear et al.'s next two stages—the letter-name stage and the within word pattern stage. The letter-name stage, which is typically when formal reading instruction begins, ranges from kindergarten to the middle of second grade. At this stage, pronunciation of letter names can influence children's reading and writing ability, while they also attend to realizations of how mouth shape and intonation affect words read. Common areas of focus during Bear and colleagues' second stage often include short vowel families and CVC words. Children must understand phonemes to progress to the next stage, referred to as the within word pattern stage, which typically involves children in second and third grade. The within word pattern stage involves exploring concepts in word study, including single syllable patterns such as CVCe, CVVC, and CVV, with attention to diphthongs. Additionally, students grapple with words that have multiple meanings and similar pronunciations, such as "steak" and "stake" or "pair" and "pear". This stage emphasizes a deeper understanding of spelling patterns and the ability to decode and spell words with more complex structures, paving the way for more advanced literacy skills.

Bear et al.'s syllables and affixes stage and derivational stage are not depicted in the *Phonetic Continuum Matrix*, mirroring the omission of Ehri's (2005) final stage. In these advanced stages, readers analyze word "chunks" rather than individual graphemes and phonemes. The syllables and affixes stage spans third grade through eighth grade, involving morphology, etymology, and inflection. The derivational stage, starting in middle elementary and extending through college, emphasizes continuous learning by exploring connections between word meanings and applications, including the study of word roots, prefixes, and suffixes to understand and generate complex words. This progression highlights the evolution from foundational phonetic skills to sophisticated word analysis and application, building a comprehensive understanding of language.

Mastering the "how" and "when" to employ the *Phonetic Continuum Matrix* in literacy instruction is contingent on a thorough understanding of Ehri's and Bear et al.'s stages. The matrix commences its journey at the partial alphabetic stage, aligning with Ehri's model, and then aligns closely with the full alphabetic stage, emphasizing the importance of sound recognition and graphemic knowledge. It proceeds through consonant digraphs, blends, vowel digraphs, and diphthongs, reflecting transition within Ehri's full alphabetic stages. Additionally, the *Phonetic Continuum Matrix* corresponds largely with the letter-name stage and the within word pattern stage in Bear and colleagues' framework, establishing that the *Phonetic Continuum Matrix* is a comprehensive tool for facilitating tailored literacy instruction throughout different stages of word reading development, particularly in grades kindergarten through second grade.

The Phonetic Continuum Matrix

The *Phonetic Continuum Matrix* offers a structured and sequential approach for the selection of decodable words for use during literacy instruction, incorporating research findings from phonemic awareness development, decoding development, and various word reading frameworks (i.e., Bear et al., 2020; Ehri, 2005). Examining Figures 1 and 2, the *Phonetic Continuum Matrix* is designed to align with the progression of phonemic awareness development, transitioning from less complex to more complex concepts as one moves from left to right across the two figures. Simultaneously, the continuum of phonics instruction development is depicted by moving from the top to bottom of the two figures. Within the individual boxes present in the model, we have integrated points where the research on phonemic awareness and decoding development intersects, offering example words that reflect both the findings in phonemic awareness research and decoding research. Our objective is not for teachers to adopt these particular words but rather to employ the alignment of research as a guide when choosing words for instruction or assessment. For example, Figure 1 demonstrates that children generally find it easier to decode words like "rash" and "much" compared to "bake" and "poke". This is because children generally master the phonetic rules for single-syllable words with final consonant digraphs and blend three-phoneme words with initial continuant sounds (e.g., 'rash' and 'much') before they become proficient with silent-e words and those with initial stop consonants (e.g., 'bake' and 'poke'). By following this structured approach, teachers of grades K–2 can more effectively match instructional materials to the developmental needs of their students, ensuring a more targeted and efficient literacy instruction process.

Figure 1: Phonetic Continuum Matrix for Acrophonic Letters and Short Vowels

Phonics Sequence: Moving from Easiest (top) **to Hardest** (bottom)			**Phonemic Awareness Continuum: Moving from Easiest** (left) **to Hardest** (right) →								
			One-Phoneme Words	**Two-Phoneme Words**			**Three-Phoneme Words**		**Four-Phoneme Words**		**Five-Phoneme Words**
				with initial vowel phoneme	with initial continuant consonant phoneme	with initial stopped consonant phoneme	with initial continuant phoneme	with stopped initial phoneme	with *initial blends	with +final blends	with Initial* and +Final Blends
	Letters	**Acrophonic Printed Letters**	a, I	–	–	–	–	–	–	–	–
	Short Vowels	ending in consonant	–	at am an in up if it on us	–	–	man sit not men set sat let run red lap net van zip sip ran log	bat pet but can did get had has him big cut put got dog pig	–	–	–
		with initial consonant digraphs	–	–	–	–	ship this shop than then them this shut	chip chat chop chin chug chap	–	–	–
		with final consonant digraphs	–	ash ick	–	–	moth much fish such lack sick math lash rash lick	cash dish push with back rock bath hush wish path	flash sloth trash black stick flash trick swish clash stash	–	–
		with initial and final consonant digraphs	–	–	–	–	shuck thick shack shush	chick whack when which check	–	–	–
		with *initial consonant blends	–	–	–	–	–	–	stop swim drop frog flip twig plan clash brush swish clap grip	–	–
		with +final consonant blends	–	–	–	–	ant ink elk ask end	–	–	jump link sent long hand help just land must thing think last left list song best	–
		with *initial and +final consonant blends	–	–	–	–	–	–	–	–	blend clump stomp plant stand bring frost blink

Note. "–" denotes the feasibility of providing an example for overlapping phonics and phonemic awareness tasks, either due to one task being developed later or being inherently impossible. *Suggested order for beginning blends is the following: tw, kw, fw, pl, bl, cl, gl, fl, pr, br, cr, gr, fr, dr, tr, st, sp, sc, sn, sm, sl, sw, str, squ, spl, scr, spr. +Suggested order for final blends is the following: st, ps, ts, nt, ns, mp, nd, nk (Barlow, 2004; Dodd, 1995; Dyson, 1988; Groff, 1971-72; Higgs, 1968; Ingram, 1976; Lindsay, 2020; McLeod et al., 2002; Paul & Jennings, 1992; Powell, 1993; Smit et al., 1990; Smith, 1973; Templin, 1957; Treiman, 1995; Watson & Scukanec; 1997; Werfel and Schuele; 2012).

Figure 2: Phonetic Continuum Matrix for Long Vowels, Vowel Combinations, and Complex Consonants

Phonics Sequence: Moving from Easiest (top) **to Hardest** (right)			**Phonemic Awareness Continuum: Moving from Easiest** (left) **to Hardest** (right) →															
			One-Phoneme Words	**Two-Phoneme Words**						**Three-Phoneme Words**				**Four-Phoneme Words**				**Five-Phoneme Words**
				with initial vowel phoneme		with initial continuant consonant phoneme		with initial stopped consonant phoneme		with initial continuant phoneme		with stopped initial phoneme		with *initial blends		with +final blends		with initial* and +final blends
	Long Vowels	single long vowel	–	–		me so no	my the	be go he	by we	–		poll toll both. .		–		bold cold find kind most	went hold told pint	grind
		with silent *e*	–	–		–		–		made make rope like land line name	same late life mile side fine shine	bake poke time came home page take	white wave base game gave date gate	brave smile write state plane drive stove	frame slime crime plate crate flame globe	–		–
	Vowel Combinations	vowel digraphs	–	oak eek	each eat	see sea may they mow sew fee	say show saw low though row	hay day tow way tea toe	bay bow bee key due	seek leap look that mean need read rain	feet real seem soon feel shown seat meet	boat been book head keep coat	took wood deep heat beat	sleep green bread great fried cream grain	stood queen float train braid brain great	toast coast paint		quaint
		vowel diphthongs	–	oil owl out	our own ouch	now vow few	chow new	cow toy how	boy high chew	soil fowl shout	south noun	town coin down.		crown brown cloud	frown clown fruit	sound pound found	point round	–
	Complex Consonants (with short and long vowels)	silent letters, hard/soft and trigraphs	–	–		knee know		–		knit lamb right face light	might night voice known knob	comb height		crumb stitch place close	school space brought climb	cent ghost		–

Note. "–" denotes the feasibility of providing an example for overlapping phonics and phonemic awareness tasks, either due to one task being developed later or being inherently impossible. *Suggested order for beginning blends is the following: *tw, kw, fw, pl, bl, cl, gl, fl, pr, br, cr, gr, fr, dr, tr, st, sp, sc, sn, sm, sl, sw, str, squ, spl, scr, spr*. +Suggested order for final blends is the following: *st, ps, ts, nt, ns, mp, nd, nk* (Barlow, 2004; Dodd, 1995; Dyson, 1988; Groff, 1971–72; Higgs, 1968; Ingram, 1976; Lindsay, 2020; McLeod et al., 2002; Paul & Jennings, 1992; Powell, 1993; Smit et al., 1990; Smith, 1973; Templin, 1957; Treiman, 1995; Watson & Scukanec; 1997; Werfel and Schuele; 2012).

Instructional Recommendations

Within this section, we explore the use of the *Phonetic Continuum Matrix* to elevate and synchronize the instruction of phonemic awareness and decoding. Furthermore, we reexamine crucial research findings and optimal approaches for teaching phonemic awareness and decoding skills. We also explore how consulting the *Phonetic Continuum Matrix* can reinforce and enhance this instructional process. By aligning instructional practices with the matrix, teachers can ensure a cohesive approach that integrates research-based strategies with practical application, thereby supporting students' progress through the various stages of reading development. This alignment not only enhances the effectiveness of phonemic awareness and decoding instruction but also provides a structured framework for monitoring and adapting teaching strategies to meet individual student needs.

Phonemic awareness tasks intentionally avoid incorporating printed letters for several crucial reasons. A primary consideration is the necessity for students to initially cultivate the ability to distinguish distinct sounds before linking them to written language, as emphasized by Lindsey and colleagues (2020). Additionally, the use of printed letters could inadvertently act as "clues," potentially leading to an inaccurate assessment of a child's genuine phonemic awareness, as noted by Kilpatrick (2015). This situation arises when children rely on visual cues rather than authentic phonemic awareness. Kilpatrick (2015) also addresses a common misinterpretation of the National Reading Panel's (NRP, 2000) original findings. NRP's suggestion was not that phonemic awareness should be taught with letters; instead, the NRP recommended moving swiftly into integrating phonemic awareness with letter recognition and the decoding process. After completing a phonemic awareness task without the use of letters, students should promptly map those same phonemes to their associated graphemes. Kipatrick argues that this practice helps students establish a robust foundation in phonemic awareness, phonetic knowledge, and a deeper understanding of the alphabetic principle. Given these considerations, Kilpatrick advises educators to use non-letter symbols or tokens when teaching phonemic awareness skills. Subsequently, students are encouraged to establish connections between the featured phonemes and printed letters by then replacing those tokens with the associated graphemes.

The importance of following phonemic awareness tasks with connections to decoding is further explained by Ehri (2020). Ehri clarifies that readers connect the spellings of words to their pronunciations. Therefore, in addition to using tokens like pennies or Bingo chips when perceiving sounds in words (e.g., Elkonin boxes), it is also beneficial to establish links between phonemes and letters, assisting children in connecting letters to their corresponding sounds (Ehri, 2020). Ehri asserts that this process helps children transition from the pre-alphabetic phrase to the partial alphabetic phrase and "facilitate[s] learning because the [letters] provide visible, concrete representations of phonemes that are transient and disappear as soon as they are spoken or heard" (Boyer & Ehri, 2011, p. 441). These research findings highlight the intricate relationship between phonemic awareness, decoding, and spelling.

The shift from phonemic awareness instruction to phonics instruction should be seamless, as recommended by Mesmer (2022). The effectiveness of this approach is well-illustrated in the opening vignette featuring Mr. Reyes, where he guided his students to orally segment phonemes in spoken words and then immediately applied that knowledge by spelling the same words. In the vignette, Mr. Reyes' students successfully read and spelled the words "man" and "sit" but encountered difficulty with the words "bat" and "dig". This challenge aligns with the principles of the *Phonetic Continuum Matrix,* where the initial continuant phonemes of /m/ in the word "man" and /s/ in the word "sit" appear earlier on the matrix when compared to the stopped sounds of the

/b/ and /d/ phonemes found in the words “bat” and “dig”. As Mr. Reyes’ students’ progress in their phonics instruction, mastering the stopped initial sounds, they will likely advance to continuant initial consonant digraphs like “sh” in the word “ship” and “th” in the word “this”, broadening their understanding of more complex phonetic patterns. Subsequently, they will further navigate through the *Phonetic Continuum Matrix,* encountering stopped initial consonant digraphs such as “ch” in the words “chat” and “chip” before moving further up and toward the right on the matrix into more complex consonant blends appearing at the beginnings and ends of words (e.g., “stop” and “ink”). This sequential development illustrates the importance of a systematic and targeted phonics curriculum, ensuring students acquire a comprehensive set of skills that progressively build upon each other, ultimately enhancing their reading and spelling abilities across a diverse range of words.

Final Thoughts

The *Phonetic Continuum Matrix* is a valuable tool for educators seeking a systematic and sequential approach to selecting words for early decoding instruction. Drawing from a comprehensive literature review, the matrix tackles the essential connection between phonemic awareness and phonics skills. Through its structured framework, the *Phonetic Continuum Matrix* helps teachers navigate from simpler to more complex phonemic and phonics concepts. The reviewed research, spanning over six decades, emphasizes the enduring importance of explicit instruction in phonemic awareness and phonics for successful reading outcomes.

Guided by theoretical frameworks from Ehri (2005) and Bear et al. (2020), the development and application of the *Phonetic Continuum Matrix* ensures alignment with stages of word reading development. Beginning at the partial alphabetic stage and progressing through consonant digraphs, blends, and beyond, this model offers a comprehensive approach tailored to different stages of emergent and early literacy. It is important to note, however, that these stages are a guide for how children might work with sounds and print. Thus, teachers should keep in mind that different children may progress through these stages differently. The integration of evidence-based practices, as advocated by Ehri (2005) and Kilpatrick (2015), highlights the significance of separating phonemic awareness tasks from printed letters initially and later connecting them seamlessly during decoding instruction.

The instructional recommendations stress the importance of a smooth transition from phonemic awareness to phonics, as demonstrated in the vignette featuring Mr. Reyes. The sequential development outlined by the *Phonetic Continuum Matix* emphasizes the importance of helping teachers understand that some individual sounds and sound combinations are harder for children to hear than others. This approach ensures students progressively build a strong foundation, leading to improved reading and spelling across a diverse range of words in increasingly complex texts. In essence, the *Phonetic Continuum Matrix* not only addresses the challenges faced by educators, as exemplified by Mr. Reyes; it also offers a practical solution grounded in research-based principles. By incorporating this model into early literacy instruction, educators can cultivate an effective and tailored approach, ultimately contributing to improved reading outcomes and literacy success for students.

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