

Coyne et al. (2025): Five Lessons Learned

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The Coyne and colleagues' paper, "The Effects of Advanced Phonemic Awareness Instruction in First Grade", drew widespread attention on social media, igniting debates about advanced phonemic awareness instruction and phonemic proficiency theory (Kilpatrick, 2020). Unfortunately, Coyne et al. (2025) does not provide data that can inform either of these debates. Nonetheless, the paper went viral on social media among educators, raising confusion and doubts about the value of teaching phonemic awareness (PA) beyond blending and segmenting. At least two researchers mentioned the paper on social media posts as evidence for their claims that advanced phonemic awareness is not an effective part of reading instruction. The reactions to Coyne et al. (2025) indicate that many readers may not fully realize which phonemic awareness tasks were actually used in this study. The resulting posts illustrate what can happen when a research report lacks clarity, then is read superficially and shared widely.

The research community has a profound responsibility to communicate findings accurately to educators. Social media intensifies this need for accurate interpretation as misinterpretations of data now have the potential to mislead the whole field, impacting educators and students as well as other researchers. Hopefully, this discussion of lessons learned from Coyne et al. (2025) will inspire those who have a social media presence in the reading science community to renew their commitment to accurately report, meticulously read, carefully interpret, and judiciously post discussions that make research findings more accessible to teachers.

Lesson #1: We must read research more carefully before commenting and reposting it. This is a useful reminder to all of us, both educators and researchers. Coyne et al. (2025) reminds us to attend carefully to the materials used in a study. Those who simply read the title and abstract of this paper might assume that it tests the effectiveness of "advanced phonemic awareness," given that this phrase appears once in the title and three times in the abstract. This may puzzle researchers who notice that advanced phonemic awareness does not appear in the research questions stated on page 311. This phrase also may puzzle some educators, who remember the Heggerty grade 1 curriculum as one that mainly teaches phonological awareness with syllables and basic phonemic awareness tasks, rather than as an advanced PA curriculum. Spoiler alert: if this was your initial reaction to Coyne et al. (2025), you were correct.

Given the power of social media, reading carefully matters more now than ever before. The ideas communicated on these platforms can impact how children learn to read, so we must be as clear and correct as possible. Researchers who described or cited this paper as one that tests advanced phonemic awareness may not have read the Method carefully enough to see that only 2 of the 8 sections in each lesson used deletion and substitution (p. 313), which are tasks that practice advanced phonemic awareness. After noticing this aspect of the design, researchers should have realized that this study could not measure advanced PA. Logically, a study with this

design can measure the effects of x skill only if most of the materials require participants to perform x skill.

Lesson #2: It is important to keep an open mind about multiple possible interpretations when the data indicate little difference between conditions, which is known as a null effect. For example, the null effect of PA on reading in Coyne et al. (2025) could be due to the curriculum using so many tasks in each lesson that there is not enough time to practice each task. Or perhaps measuring student outcomes in the first year of the curriculum's implementation affected the results. Or perhaps gains in PA have little immediate impact on reading growth if the PA instruction does not accompany explicit and sequential phonics instruction.

Numerous factors can contribute to the failure to find an expected effect. Not finding an effect simply indicates that one study did not find it. It is not evidence that there is no effect. That is why researchers typically do not make claims based on null effects. Also, any single research study contributes little to advancing our understanding even when there is an effect. A convergent pattern of findings provides more reliable guidance about instruction than one study (Stanovich, 2019). When findings from several studies converge, it confirms that any one finding is not a fluke. After several research studies converge on a pattern of similar findings, educators can find reliable information to guide instruction. For example, we know that phonemic awareness instruction and phonics instruction are essential to reading development for most children based on a robust and convergent scientific literature.

To prepare this response paper, we dove into the Heggerty and VanHekken (2014) curriculum in order to check whether the distribution of advanced PA items in the sections was consistent with the distribution of items in each lesson. When we counted the basic PA items and the advanced PA items (based on the definition in Coyne et al.), *only about 26% of the items in the Heggerty 2014 curriculum provided practice with advanced phonemic awareness skills*. Many more items provided basic phonemic awareness practice than advanced phonemic awareness practice. This study cannot measure the effects of advanced PA because most of the materials do not demand advanced PA. Later in this response, we describe how the proportion of items was checked.

Despite the relatively small proportion of advanced PA items, Coyne et al. (2025) devotes a large portion of the literature review to advanced phonemic awareness. Further, it discusses the results in terms of advanced phonemic awareness instruction. Here is one example:

Proponents have suggested that teaching advanced phonemic awareness is associated with gains in student word reading, especially real word reading (Kilpatrick, 2015; Kilpatrick & O'Brien, 2019). We did not find evidence that the Heggerty Phonemic Awareness curriculum led to transfer effects on measures of word reading or reading connected text. (p. 320)

The proximity of these two sentences implies that the findings of the present study are inconsistent with Kilpatrick's data. Yet this study did not include a large enough proportion of advanced items to offer evidence relevant to Kilpatrick's data. The mismatch between the materials used and the conclusions drawn could leave some readers to wonder how this paper cleared the review process. The quality of peer-reviews varies, so it is worthwhile to check

whether the design of a given study supports the proposed findings. Lesson #3: If you feel uncertain about the validity of a study, then you may not want to magnify the study's impact by reposting, commenting, or mentioning it.

Does Coyne et al. (2025) report data that speak to advanced phonemic awareness instruction? To answer this empirical question, we secured a copy of Heggerty and VanHekken (2014) and then set to work counting the items in each section of the lesson for each day in each of the 35 weeks. After the item counts were totaled for each activity, we calculated the number of items overall in basic tasks that developed foundational or basic phonemic awareness skills and the number of items overall in tasks that develop advanced phonemic awareness skills. From this tally, we calculated what proportion of items in the Heggerty 2014 curriculum involve advanced phonemic awareness activities (see Table 1).

Following the Coyne et al. (2025) definition of basic and advanced skills (p. 309), we counted items that provided practice with segmenting and blending skills as basic. We counted items that provided practice with manipulation of sounds by deletion or substitution as advanced. This left only the addition tasks, which the authors' definition did not include. We categorized most items using this task as basic, given that they operated similarly to a blending task. However, addition tasks that inserted a sound internally (e.g., *but* to *bunt*) were counted as providing practice with advanced skills because students had to manipulate the phonemes. In keeping with the authors' definition above, we included all substitution and deletion items in the advanced category, even those that manipulated syllables and words within compound words (e.g., *cowboy* to *cow*) – which many definitions would not consider advanced. As a result, our calculations may overestimate the proportion of advanced PA items. Overall, we determined that about 26% of the items practiced advanced phonemic awareness skills (see Table 1).

Table 1. *Tasks Building Basic and Advanced PA Skills in Heggerty and VanHekken (2014)*

	Basic PA	Advanced PA	Total
Number of Items	9,794	3,424	13,218
Percentage	74%	26%	100%

We recognize that counting the number of basic and advanced items in the full curriculum can provide only an estimate of the actual activities that students in the treatment condition experienced during the study. However, Coyne et al. (2025) report high implementation fidelity (>95%) for this first year of implementation. In other words, trained observers documented that teachers faithfully presented the items in the curriculum, which suggests that the ratio of basic to advanced skill items in Table 1 is likely to be a fair estimate of students' actual learning experience.

Given that the advanced phonemic awareness skill items were in the minority, it is puzzling to read the abstract state: “We found that advanced phonemic awareness instruction had statistically significant effects on a proximal measure of phonemic awareness but not on near-transfer measures of word reading or a far-transfer measure of oral reading fluency.” In order to

draw conclusions about the effect of one variable (e.g., advanced PA) on another variable (e.g., reading) using this design, the study should have presented most or all items that practiced advanced PA. Instead, only about a quarter of the items fell into the “advanced” category.

Coyne et al. (2025) cannot speak to the impact of teaching advanced phonemic awareness. To draw any conclusions about the effect of advanced phonemic awareness from this study, most of the items would need to provide practice with advanced PA skills. As Table 1 shows, the majority of items provided practice with basic PA skills. Therefore, it seems like most of the conclusions stated in the abstract cannot be drawn from this data set, which is quite surprising. The Coyne et al. (2025) data cannot not speak to the effectiveness of advanced phonemic awareness instruction or the phonemic proficiency hypothesis (Kilpatrick, 2020).

Lesson # 4: The rapid spread of misinformation over social media can overshadow the actual contribution of a study. In the case of Coyne et al. (2025), the actual contribution may be that whole class PA curriculums are not as effective as we hope in grade 1. The students who received the curriculum demonstrated stronger PA skills at the end of first grade, but not stronger reading skills, than the control group (Heggerty & VanHekken, 2014). The absence of PA effects on reading when using this curriculum could indicate that the National Reading Panel recommendations for effective PA instruction were right on in recommending that daily PA instruction should include 1-2 tasks per lesson (NRP, 2000). In contrast, the Heggerty curriculum used in this study had 8 PA tasks in each lesson. Therefore, the reported lack of impact on reading skills is entirely consistent with the NRP recommendations. If the results of this study had been reported more clearly, this could potentially spark additional research into how to teach PA in grade 1 more effectively.

Lesson #5: Effective instructional practices are supported by a convergence of findings from several studies. The importance of phonemic awareness instruction to children’s reading development is affirmed by a robust research literature. It is one of the necessary elements in effective reading instruction (NRP, 2000). The research confirms the experience of teachers: students’ decoding and spelling development accelerate once PA becomes a daily part of the structured literacy lesson. By first grade, some students may be reading and spelling while other students are still acquiring the alphabetic principle. Struggling readers benefit from instruction that builds their ability to identify and manipulate sound sequences in words (Ball & Blachman, 1991; Ehri & McCormick, 1998; Hurford et al., 1994). Teachers can support PA skill development by using a diagnostic assessment to identify where students are in their phonemic awareness development. From there, teachers can choose the appropriate instructional tasks to develop basic and advanced PA skills.

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Five Lessons Learned from Coyne et al. (2025)

#1: Read research carefully before commenting and sharing it.

#2: Keep an open mind about multiple interpretations of a data pattern.

#3: If you feel uncertain about the validity of a study, then you may not want to magnify the study's impact by reposting, commenting, or mentioning it.

#4: The rapid spread of misinformation about a study can overshadow its actual contribution.

#5: Effective instructional practices are best supported by a convergence of findings from several studies.

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