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AI and the Possibilities for Early Literacy Instruction

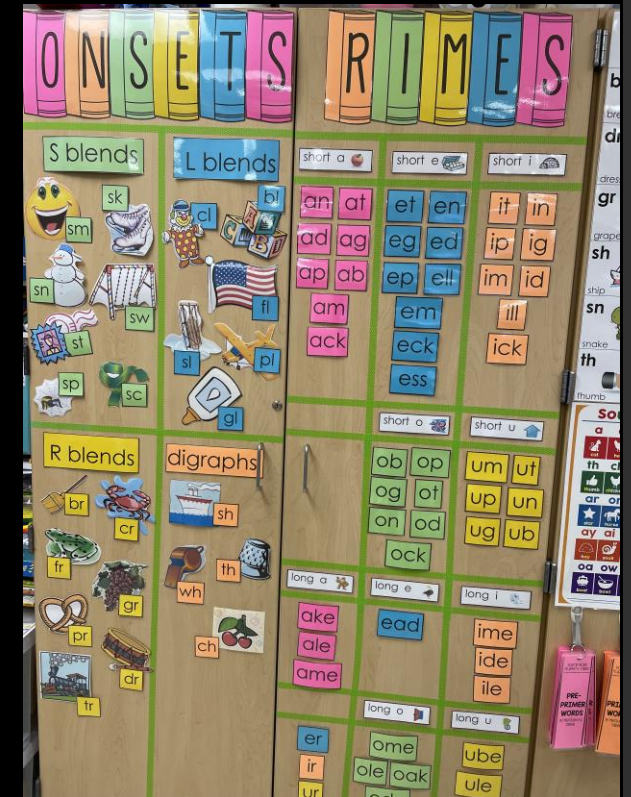
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Learning to Read

- Learning to read is a complex process that rewires the brain
- It's not natural like learning language
- The majority of students require explicit, sequential instruction in the sounds that make of our language (phonemes) and the letters and letter patterns that correspond (graphemes)



Teaching Reading

- Requires knowledge in literacy development and linguistic knowledge to facilitate students' orthographic mapping (Moats, 1994)
- Having a high self-efficacy (belief in their ability) is associated with being able to try different instructional strategies to reach all learners (Taschannan-Moran & Johnson, 2011)
- Several studies have revealed low levels in both in preservice and inservice teachers (Forgie, Hu, & Bocalon, 2022; Mather, Bos & Babur, 2001)

Artificial Intelligence



Bill Gates says A.I. chatbots will teach kids to read within 18 months: You'll be 'stunned by how it helps'

Published Sat, Apr 22 2023 • 8:30 AM EDT

Tom Huddleston Jr.

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Microsoft co-founder Bill Gates reacts during a visit with Britain's Prime Minister Rishi Sunak of the Imperial College University, in London, Britain, February 15, 2023. Justin Tallis | Pool | Reuters



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- 1** 21-year-old spent \$300 to start his sticker side hustle—now it brings in up to \$38,000 a day



Teacher Intro and FAQ

We're very excited to have you trying out Project Read with your students! We hope this document answers your questions, but please feel free to email us at info@projectread.ai for any help.

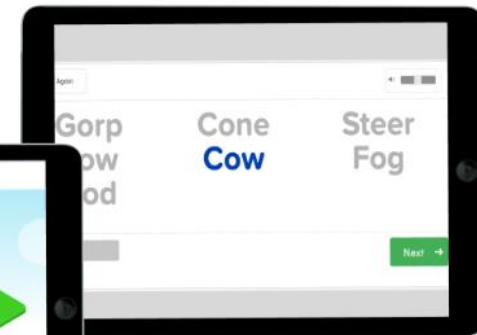
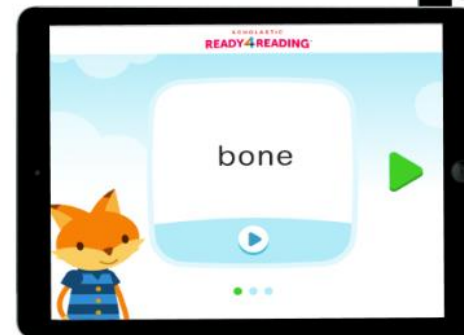
1. What is Project Read?

Project Read is an **AI tutor for the Science of Reading**. What does that mean? Put simply, young students (typically grades K-3) read out loud to our app and the AI tutor does two main things:

Personalized Decodables: generates decodables on the fly for each child based on the current objective and mistakes the child has previously made

Live 1-1, Spoken Feedback: the tutor **listens to students at the phoneme level**, allowing the tutor to provide the student with a hint based on the exact phoneme/grapheme(s) the student missed

This combination gives you the superpower to teach reading and extend individualized support to each child in your class based on their unique needs. It is available on any device with access to the Google Chrome (preferred) or Safari browsers.



Keeping humans “in the loop”

- “The more time that you can give to teachers to interact and utilize these tools to enhance their productivity...then the more time they can spend actually teaching and interacting and doing what we do now, which is human conversation” -Andy Bird (Pearson CEO)
- “Our educators need more information about how AI is evolving, how it’s used in the lives of learners. They need more capacity and support around utilizing AI as another edtech tool in helping support the success of their students” Rodriguez (US Department of Ed)
- Reducing paperwork
- Idea generation/decodable passage generation
- Assessment tool

Potential Pitfalls

RE

how many phonemes are in the word "fox"



The word "fox" has three phonemes: /f/ /o/ /k/s/.



Each sound or distinct unit of sound in a word represents a phoneme. In "fox," the individual phonemes are represented by the sounds /f/, /o/, and /k/s/.

RE

is /k/s/ one phoneme?



I apologize for the confusion in my previous response. In the word "fox," there are only two phonemes: /f/ and /ɒ/ (the "o" sound in "fox"). The "x" in "fox" does not represent a separate phoneme but is a combination of two letters ("x") that together create the /ks/ sound. Therefore, the "x" in "fox" represents a single phoneme, which is the /ks/ sound.



RE

but ks is two sounds



You're correct. I apologize for the mistake in my previous explanation. In the word "fox," the "x" represents two separate sounds, /k/ and /s/, making it two phonemes. The sounds /k/ and /s/ are two distinct phonemes, not a single phoneme, as they are pronounced separately when enunciating the word "fox." Therefore, the word "fox" contains three phonemes: /f/ /ɒ/ /ks/.



RE

are you having trouble counting?



I apologize for the previous mistake. In the word "fox," there are actually three phonemes:



/f/ - the initial sound "f"

/ɒ/ - the middle sound "o" as in "fox"

/s/ - the final sound "s"

I hope this clarifies the count of phonemes in the word "fox."

RE

what happened to the /k/ sound?



Apologies for the confusion earlier. In the word "fox," the sounds are:



/f/ - the initial sound "f"

/ɒ/ - the middle sound "o" as in "fox"

/s/ - the final sound "s"

There's no /k/ sound in the word "fox." The /ks/ sound is represented by the letter "x" in "fox," but in terms of phonemes, it's a combination of the /k/ and /s/ sounds. In the English language, the "x" in words like "fox" can indeed represent the combination of /k/ and /s/ phonemes.

Counting Phonemes

RE

Can you give me another list that includes digraphs and vowel teams



Certainly! Here's a list of words with three phonemes that include digraphs (two letters representing one sound) and vowel teams (two vowels together making a sound):



1. Ship (/ʃ/ /ɪ/ /p/)
2. Team (/t/ /i:/ /m/)
3. Coat (/k/ /oʊ/ /t/)
4. Cheese (/tʃ/ /i:/ /z/)
5. Rain (/r/ /eɪ/ /n/)
6. Shoe (/ʃ/ /u:/ /z/)
7. Night (/n/ /aɪ/ /t/)
8. Sweet (/sw/ /i:/ /t/)
9. Chair (/tʃ/ /ɛə/)
10. House (/h/ /aʊ/ /s/)

These words contain digraphs (e.g., sh, ch) and vowel teams (e.g., ai, ee, oa) while each having three distinct phonemes.

Limiting words by phonics features

RE

Create a connected decodable text about pets that includes CVC and VC words



Certainly, here's a connected decodable text about pets using CVC and VC words:



Title: "My Pet Cat"

I have a pet cat. Her name is Tab.

Tab is a fat cat. She can hop and nap.

I pat Tab. She purrs. I am so glad.

Tab is my pal. I love her so much.

We play and run. It's so much fun.

Tab is my pet. She is the best.

I'm happy with my pet cat, Tab.

In this text, you'll find both CVC and VC words like "cat," "Tab," "pat," "nap," "hop," "I," "am," "run," "pal," and "pet." This text can be used for early reading practice to help kindergarten students learn and apply phonics skills.

Regenerate

Preservice Teachers and AI

- Exploratory pilot study with 8 students in Teaching Reading and Language Arts (Early Literacy) course
- Interactions with ChatGPT
 - Instructed students to use it to try to get a useful resource, such as word list or decodable text for a phonics lesson.
- Discussion board prompt: Impressions of using it

Qualitative analysis

- Conversations:
- Analyzed for type of requests
- Progression of the “conversation”
- Looked at content vocabulary used

Chat GPT conversations

Requesting specific resource (word list or lesson plan)



I need a good decodable word list for 1st grade



Certainly! Here's a list of decodable words suitable for first-grade students. These words are designed to align with the phonics skills typically taught at this grade level. You can use these words for reading and spelling practice:

Short Vowels:

1. cat
2. sit
3. hop
4. run
5. bed
6. dog
7. hat
8. net
9. pig
10. sun

Consonant Blends:

11. clap

1. spot
2. drum
3. slip
4. grin

Consonant Digraphs:

16. ship

1. chat
2. thin
3. chop
4. whiz

Long Vowels (CVCe pattern):

21. bake

1. hike
2. time
3. cute
4. hope

R-Controlled Vowels:

26. car

1. bird
2. horn
3. fern
4. curl

Sight Words (high-frequency words often introduced in first grade):

31. the

1. and
2. a
3. to
4. of



Please give me a decodable texts for first grade?



Certainly! Here's a simple decodable text suitable for first-grade readers:

Title: "A Big Red Hen"

Dan had a big red hen. The hen ran in the pen. Dan fed the hen corn.

The hen can hop. The hen can run. The hen is fun!

Dan and the hen nap in the sun. Dan has a big, red hen.

Specified grade level or skill

- Can you please write me a lesson plan that teaches first graders how to segment one syllable words into individual phonemes, and then moving into adding and deleting phonemes to make new words?
- create a connected decodable text of CVC and VC word patterns for kindergarten
- Can you give me a list of 3 syllable words suitable for kindergarten students
- Can you give me a list of 3 letter words suitable for Kindergarten students
- Please give me a phonics lesson that is appropriate for first grade?

Vague Requests eliciting poor responses



can you create an appropriate word list for Kindergarten students?



Certainly! Here's a list of simple and common words suitable for Kindergarten students:

1. Apple
2. Ball
3. Cat
4. Dog
5. Elephant
6. Fish
7. Grapes
8. Hat
9. Ice cream
10. Jelly
11. Kite
12. Lion
13. Moon
14. Nest
15. Octopus
16. Pig
17. Queen
18. Rainbow
19. Sun
20. Turtle
21. Umbrella
22. Van
23. Worm
24. Xylophone
25. Yak
26. Zebra



can you create a story that focuses on short vowel sounds for 1st grade



Title: The Lost Pup

Once upon a time, in a bustling little town, there was a group of curious first-grade friends named Sam, Ella, Tim, and Lily. One sunny afternoon, as they played in the park, they heard a soft whimper coming from behind the bushes. Curiosity piqued, they decided to investigate.

There, nestled in a cozy corner, they found a tiny, lost pup with big, round eyes and a wagging tail. The pup seemed friendly, but it was clear he needed to find his home. The friends decided to help and embarked on an adventure together.

Chapter 1: A Plan is Hatched

"Let's find the owner of this adorable pup!" Sam exclaimed.

Ella nodded, her eyes filled with determination. "We should split up and ask around the neighborhood. Maybe someone has lost their dog."

Tim agreed, adding, "But first, let's make sure our new friend is comfortable. We can give him some water and a cozy blanket."

Chapter 2: The Search Begins

Armed with water, a blanket, and the company of the lost pup, the friends set out. Along the way, they encountered various animals and people. Each encounter brought them closer to solving the mystery.

At Mrs. Johnson's farm, they met a hen named Penny who laid brown eggs. "Listen, children," Mrs. Johnson said, "Penny always sings a song after laying an egg. It goes, 'e-ehh, e-ehh.' Can you hear the short 'e' sound?"

Progressively complex requests



Can you give me a Phonological Awareness Activity lesson plan for a first grade classroom.
Using decodable words



Can you create a more engaging Phonological Awareness Activity for a small group of 4-5
students for a tier 1



Can you create a more engaging Phonological Awareness Activity for a small group of 4-5
students for a tier 1. For Virginia SOL: Oral Language

1.1 The student will continue to demonstrate growth in the use of oral language.

- a) Listen and respond to a variety of electronic media and other age-appropriate materials.
- b) Tell and retell stories and events in logical order.
- c) Participate in a variety of oral language activities, including choral speaking and reciting short poems, rhymes, songs, and stories with repeated patterns.
- d) Participate in creative dramatics.
- e) Express ideas orally in complete sentences.

Questioning Accuracy

Deleting Phonemes:

- Delete /r/ from "car" to make "ca."
- Delete /p/ from "lap" to make "la."
- Delete /g/ from "dog" to make "do."

These activities help students practice manipulating phonemes and develop a deeper understanding of how sounds in words can be changed to create new words. These practices align with the principles of phonemic awareness instruction and can be adapted to suit your students' needs.



Deleting /r/ from "car" does make "ca", but that is not a real word.



You are absolutely right, and I apologize for the oversight in my previous response. Deleting /r/ from "car" does not create a real word. It's important to ensure that the examples used in phonemic awareness activities result in valid, real words to reinforce meaningful language skills.

Here is a corrected example:

- Delete /r/ from "car" to make "cart."

Thank you for pointing out the mistake, and I appreciate your attention to accuracy in phonemic awareness activities.

12. Blue
13. Cup
14. Bed
15. Fish
16. Pig
17. Bird
18. Stop
19. Up
20. Down
21. Big
22. Wet
23. Top
24. Leg
25. Box

These words are all free of silent "e" sounds and should be suitable for early readers who are still learning basic phonics rules.



does blue have a silent e sound



I apologize for the oversight in my previous response. "Blue" does indeed have a silent "e" sound. I appreciate your attention to detail. Here's a revised list without words containing the silent "e" sound:

1. Dog
2. Cat
3. Sun

Themes that emerged

- Initial skepticism vs potential
 - “I was blown away by the subject matter”
 - “I’ve never used AI before, but I see how it can be helpful”
- Limitations on “simple” tasks
 - “While reading through them I found many errors”
 - “It’s not 100% accurate”
- Specificity needed in questioning
 - “It depends on how you ask the question”
 - “It may take me two or three tries to get all the information I want”
- Helpful as a resource
 - “I feel like this could be a really helpful resource”
 - “It gave me a really cool activity on word segmentation...I would use it”
 - “Best to use as a resource and basis and then create your own”

Implications & Limitations

- Limitations in ChatGPT3.5, but have heard that 4.0 is much more advanced
- Small sample size
- Preservice teachers need direct instruction in writing sufficiently specific requests
- Preservice teachers need to apply vocabulary correctly
- Preservice teachers need to be able to identify incorrect information (hallucinations)

Future Directions

- How do the requests and interactions of preservice teachers with ChatGPT change over time when given instruction and time to explore.
- Can the use of AI as a tool increase self-efficacy of new teachers?

Thank you

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