



Impacting Literacy Outcomes: Effectiveness of a Tier 3 Early Literacy Intervention in Preschool

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Disclosure

- One of the authors of this presentation is a co-owner of Dynamic Measurement Group, Inc (DMG).
- DMG is an educational company that is dedicated to supporting success for children and schools.
- DMG may benefit if the curriculum featured in this presentation is commercially published.
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Overview

- Introduction
 - What is Tier 3 Intervention and do we need it in preschool?
 - Effective elements of Tier 3 intervention
 - Tier 3 intervention example
- Study
 - Sites and participants
 - Measures
 - Design
 - Analysis and Results
 - Discussion



What Is Tier 3 Intervention?

- Supplemental instruction/support that is more intensive and individualized than lower levels of instructional support (i.e., Tiers 1 and 2)
- Compared to Tier 2:
 - smaller group size
 - more time
 - more frequent progress monitoring
 - more frequent use of specialists/special educators for implementation

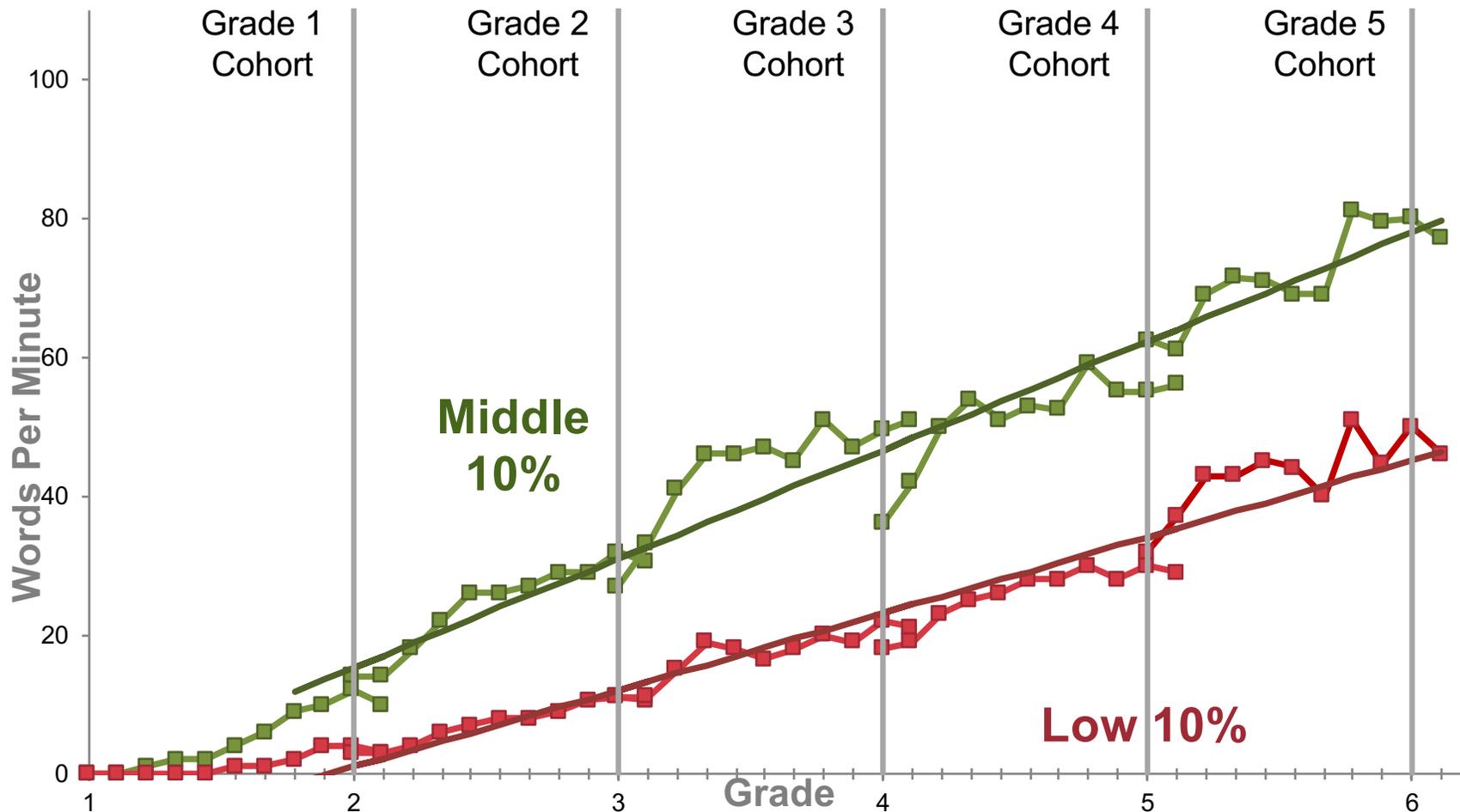
Barnett, VanDerHeyden, & Witt, 2007; Connor, Alberto, Compton, & O'Connor, 2014; Jenkins, Schiller, Blackorby, Thayer, & Tilly, 2013



- Issue: Is Tier 3 Intervention needed in preschool?



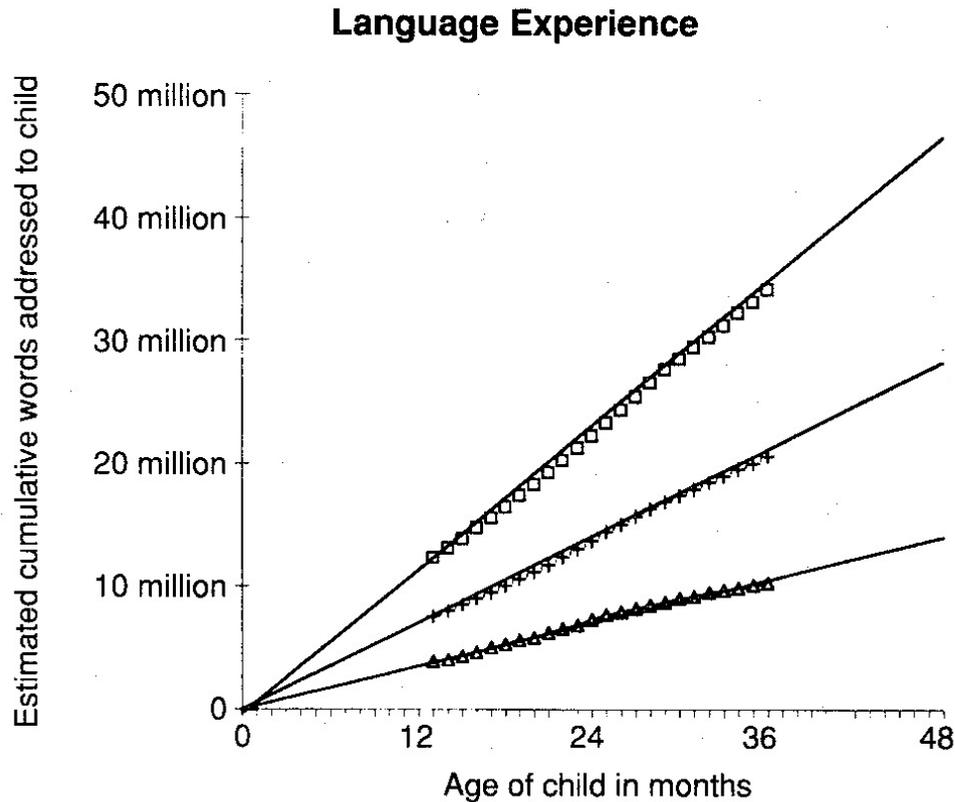
The Issue: Reading Trajectories Start Early



Good, R. H., Simmons, D. C., & Smith, S. B. (1998). Effective academic interventions in the United States: Evaluating and enhancing the acquisition of early reading skills. *School Psychology Review*, 27, 740-753. [Joint publication with *Educational and Child Psychology*.]



The Issue: Differences in Precursors to Reading Trajectories Begin Even Earlier



Hart & Risley, 1995



Patterns in Performance are Stable Across the Preschool Year ...

... unless we DO something (Cabell, Justice, Logan, & Konold, 2013)

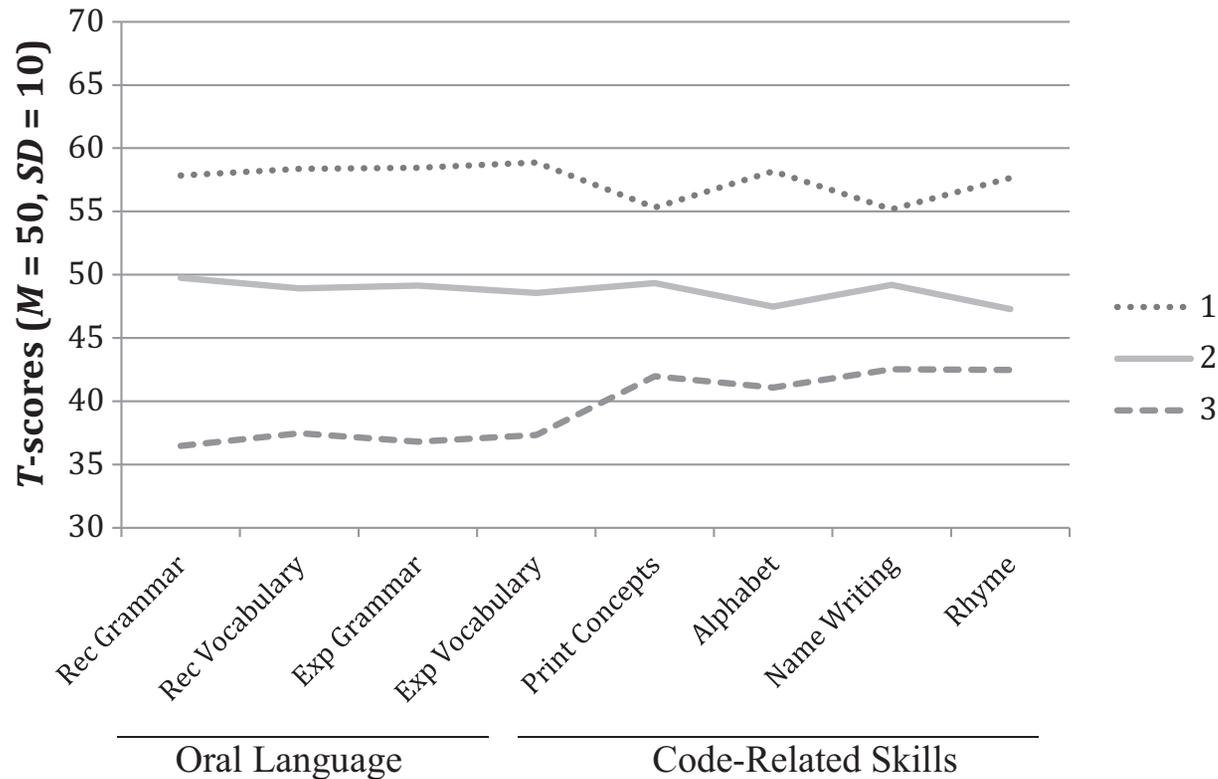


Fig. 2. Spring profiles of emergent literacy ($N=369$). Profile 1: Highest emergent literacy (35.0%); Profile 2: Average emergent literacy (46.3%); Profile 3: Lowest emergent literacy (18.7%).



Issue: Is Tier 3 Intervention Needed in Preschool?

- Skills with which children enter kindergarten make a significant difference to later academic success.
- Children who start preschool with lower than average early literacy and language levels rarely close initial skill gaps without some type of intensified instruction.

Greenwood et al., 2012; National Early Literacy Panel, 2008



Challenges in Implementing T3

- Identifying children for T3 intervention
- Identifying effective T3 interventions
- Managing and implement interventions
- Monitoring progress



Identifying Children for Tier 3

- Which children need Tier 3 support?
 - Children who are significantly behind their peers in the acquisition of critical early skills (e.g., social/behavioral, early literacy, language skills).
- What do we know about these children
 - Children are behind in the acquisition of skills for a variety of reasons (e.g., ELL, lack of exposure to/experience with print, speech-language delays, other learning difficulties).
- Pick a reliable and valid screening tool and use it!

Al 'Otaiba & Fuchs, 2002



Effective Tier 3 Interventions

- The challenge:
 - What *is* an effective Tier 3 intervention?





Features of Effective T3 Interventions

- Lowest performing children benefit the most from language and early literacy intervention that is:
 - More systematic
 - More explicit
 - Focused on priority skills
 - Increases opportunities to respond
 - More individualized

(e.g., Biemiller & Slonim, 2001; Connor et al., 2014; Foorman & Torgesen, 2001; Justice & Vukelich 2008; Simmons, 2015)



Systematic

- Carefully designed scope and sequence of skills
 - Prerequisite skills taught first
 - Complex skills divided into small chunks
 - Introduces skills in a way to minimize confusion



Explicit

- Directly teaching skills using
 - Clear and concise language
 - Explanations and demonstrations of the skill
 - Guided practice with corrective feedback
 - Independent practice

(I do , we do, you do)



Focus on Prioritized Content

- Children experience greater difficulty in learning when there are too many learning objectives.
- To accelerate progress, focus on teaching the most critical skills in an optimum sequence at an optimum rate.



Increase Opportunities to Respond

- Children with the most intensive instructional needs require numerous opportunities to practice and receive immediate feedback on the skills they are learning.
- Most of the intervention time should be spent practicing the skills taught.
- Provide instruction in smaller groups.



Individualize

- Adapt instruction to children's strengths and needs
- Modify instruction as children progress and needs change
- Options for individualizing include changes in:
 - Content
 - Activities
 - Duration
 - Pace
 - Support (e.g., scaffolding)
 - Teaching to mastery and repeating lessons as necessary



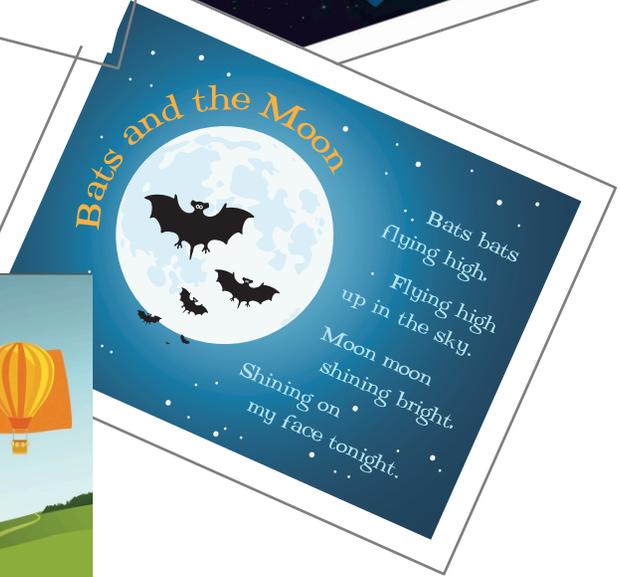
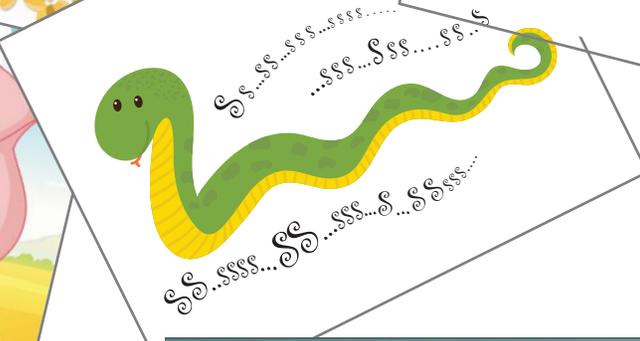
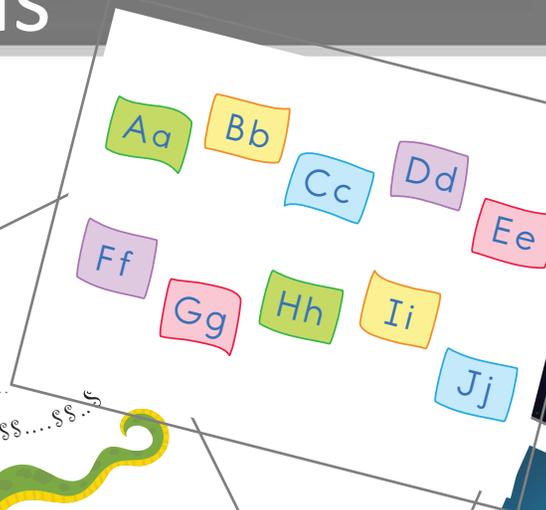
Effective Tier 3 Curriculum Example: Reading Ready

- Reading Ready activities are designed to be implemented in the classroom by a teacher in small groups or 1-1.





Tier 3 Early Literacy Intervention Sample Materials





Effective Tier 3 Curriculum Example: Reading Ready

- Focus
- Content
 - Carefully sequenced skills/tasks
 - Clear objectives
 - Small learning units
- Strategies
 - Explicit instruction
 - Consistent and simple instructional language
 - Ample opportunities to respond (6-12/minute)
 - Strategies encouragement and guidance
 - Strategies for providing support (scaffolding)



Tier 3 Intervention: Focus

Early Literacy Intervention

- Goal: Understanding of the alphabetic principle
 - Alphabet knowledge: Familiarity with letters of the alphabet, recognize and name letters
 - Phonemic awareness: Recognize and identify first sounds in words
 - Understand connection between letter sounds and speech and relationship to reading



Systematic: Careful sequence of skills

- Concept of a word
- Word parts
- Initial sounds
 - /m/
 - /f/
 - /b/
 - /t/
 - /s/
 - /p/
- Generalize to new sounds
 - /l/
 - /g/
 - /r/
 - /k/
 - /n/
 - //



Effective Tier 3 Curriculum Example

Lesson 7

Recognize First Sound /m/ in Words

Goal: The child will recognize words with the first sound /m/.

Materials:

- L7 Game markers: Mindy Mouse and Mike the Mole
- Optional: Picture cards from sets M and MC, generic gameboard

Encouragement and guidance:

- When the child selects the correct word, say, **Yes! The word *map* starts with the first sound /m/.**
- If the child does not select the correct word, say, **The word *map* starts with the first sound /m/. Listen. *Map*.** Elongate the /m/ sound as you say the word. **Say it with me. *Map*.** Encourage the child to elongate the /m/ sound in the word. **Which word starts with the first sound /m/?**

If the child has difficulty

- Emphasize the first sounds in words by elongating them, for example, ***mmmoon***.
- Be sure that the child says each word before selecting the word that starts with /m/.
- Have the child say the words with you “the slow way,” emphasizing the first sound in the word.
- Have the child say each word multiple times.

Variations

- Use picture cards from sets M and MC and play one of the game variations for discriminating first sounds.*
- * You may use generic game boards and markers of your choice for any of the variations listed above.



Effective Tier 3 Curriculum Example

1. Review

- **Last time we learned about the sound /m/. /m/ is the yummy sound. It is the sound we make when we eat something that is yummy. /mmm/. Rub your stomach as you say the sound.**
- **/m/ is the first sound in words: *my, moose, man*. Elongate the /m/ sound as you say the words.**
- **Let's practice listening for /m/. I will say some sounds. When I say the yummy sound, /m/, rub your tummy, like this.** Rub your stomach as you say the sound. **If I say a sound that is not /m/, keep your hands in your lap, like this.** Fold your hands together in your lap.
- Say the following sounds: /m/ /f/ /m/ /m/ /r/. Provide encouragement and guidance as needed.





Effective Tier 3 Curriculum Example

2. Introduce

- Today we are going listen for the /m/ sound in words. We will say words and pick the one that starts with /m/.

3. Demonstrate

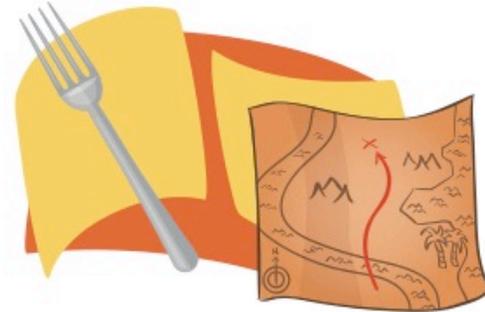
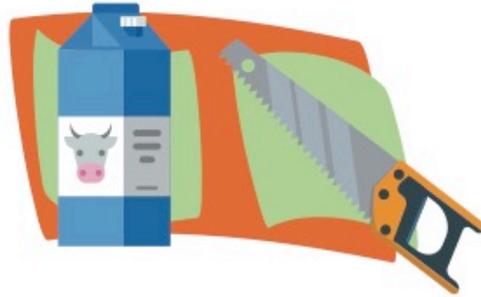
- Here are some pictures of words. I will say two words, then I will pick the word that starts with the first sound /m/.
- Point to *milk*. **This is milk.** Point to *saw*. **This is a saw.** Now I will pick the word that starts with /m/—*milk* (point) or *saw* (point). Pause, then point to *milk*. **I pick *milk*. The first sound in the word *milk* is /m/. /m/ *milk*.**
- Watch and listen again. Point to *fork*. **This is a fork.** Point to *map*. **This is a map.** *Fork* (point). *Map* (point). **I pick *map* because the first sound in the word *map* is /m/. /m/ *map*.**

4. Do It Together

- **Let's do it together.** Point to *milk*. **Say *milk*.** Point to *saw*. **Say *saw*.** Now, let's say the one that starts with the first sound /m/. Ready? Pause. Point to *milk*. ***Milk*.** Be sure the child says the word with you. Repeat if necessary.
- Repeat the wording above with the following words. Be sure the child does it with you.
 - *fork* / **MAP**
 - *shark* / **MOON**
 - **MARKER** / *fairy*
 - *shoe* / **MAIL**



Effective Tier 3 Curriculum Example





Effective Tier 3 Curriculum Example

5. Guided Practice (a)

- **Let's play a game.** Have the child select a game marker and place it on the green dot.
- **Here is a meadow. Let's help (marker) get to the mountain without getting caught by the marsh hawk. This is the path that (marker) needs to follow.** Point and move your finger along the path.
- **I will say two words. You pick the word that starts with the first sound /m/ and then (marker) can move to that space.**
- Point to *moose*. **This is a moose. Say moose.** Point to *lion*. **This is a lion. Say lion. Which word starts with the first sound /m/—moose or lion?** Provide encouragement and guidance as needed.
- After the child responds correctly, either independently or with guidance, say, **Yes! the word moose starts with the first sound /m/. /m/ moose.** Move the game marker onto the space.
- Repeat the wording above with the following words. Provide encouragement and guidance as needed.
 - *fire / MOP*
 - *MUFFIN / shovel*
 - *rake / MAT*
 - *MUD / leaf*

NOTE: If the child was able to respond correctly on **four out of five** of the previous words independently, you may move directly to the Checkout. If the child needs more practice, continue with the next game.

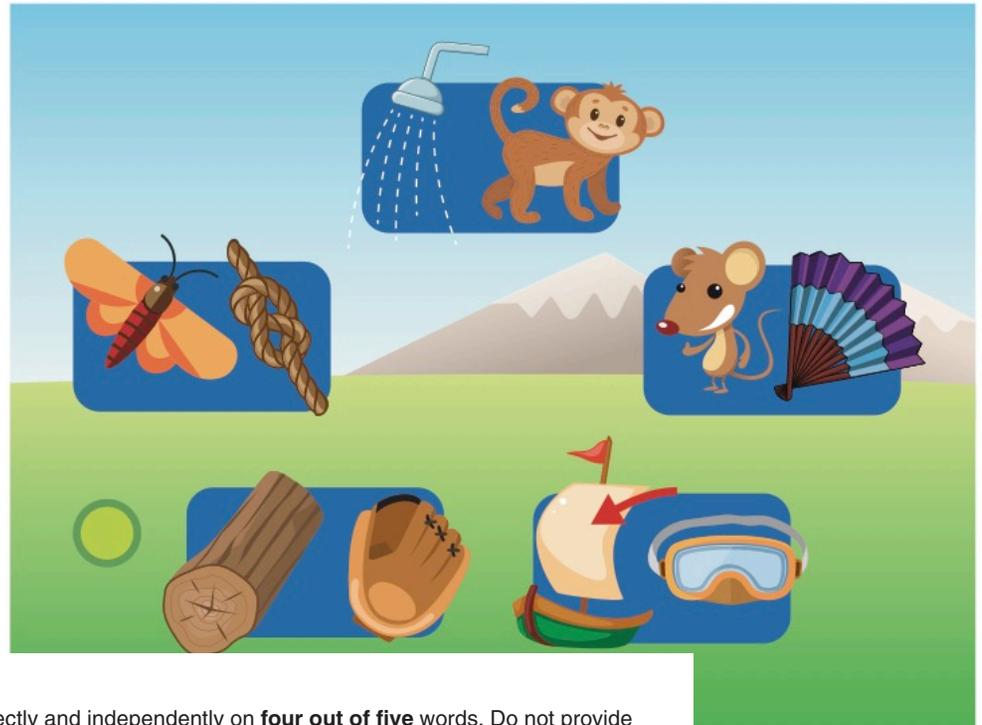


Effective Tier 3 Curriculum Example





Effective Tier 3 Curriculum Example



6. Checkout

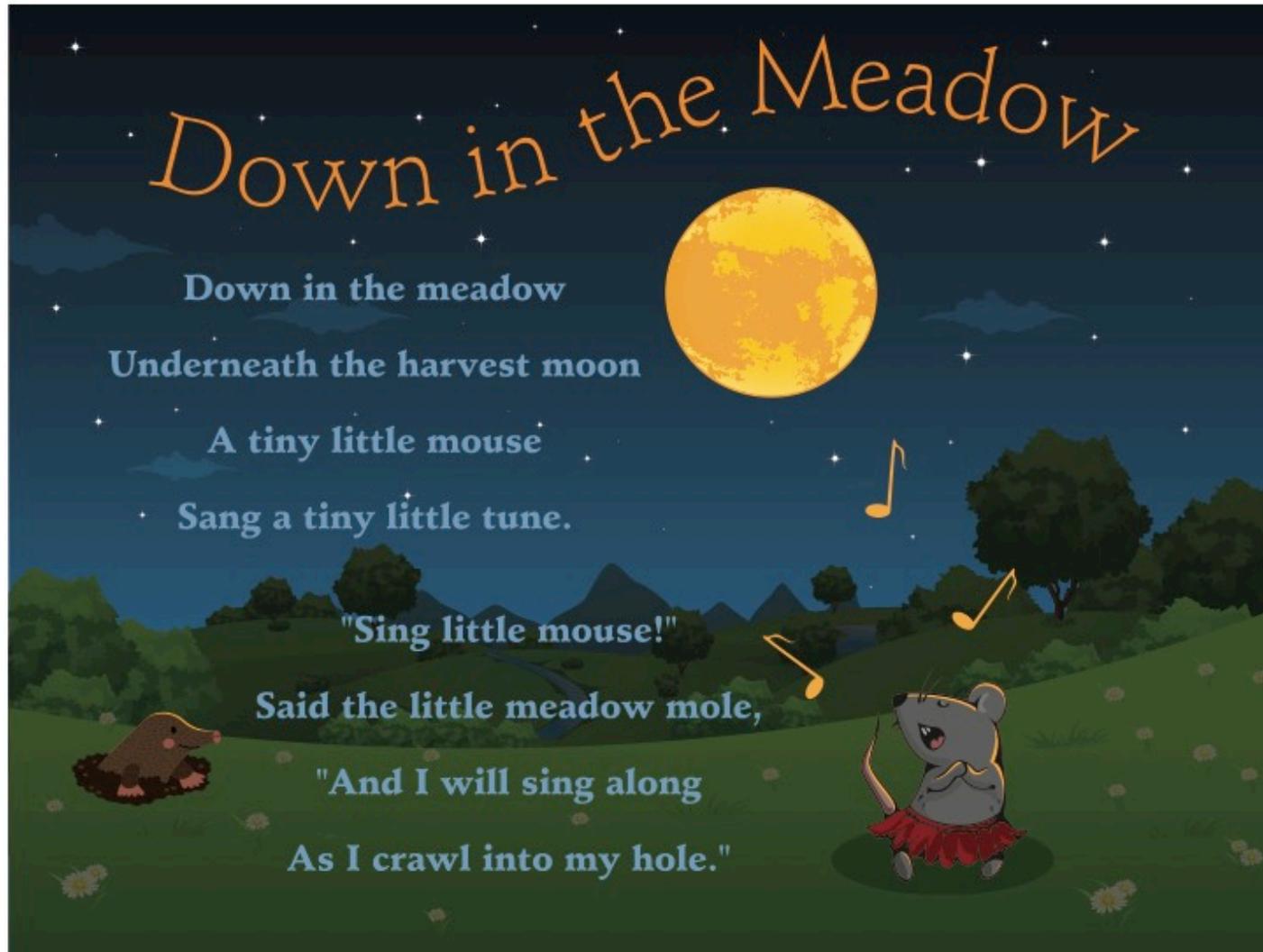
To pass the Checkout and move to the next lesson, the child must respond correctly and independently on **four out of five** words. Do not provide guidance on the Checkout.

- **Here are more pictures. Put (marker) here.** Point to the green dot.
- **I will say two words. You tell me which word has the first sound /m/ and then (marker) can move to that space.**
- **Say these words after me.** Point to *log*. **Log.** Point to *mitt*. **Mitt. Which word starts with the first sound /m/—log or mitt?** After the child responds, correctly or incorrectly, move the marker to the first space.
- Repeat the wording above with the following words. Move the marker forward one space for each word responded to, whether correct or incorrect.
 - *sail* / **MASK**
 - **MOUSE** / *fan*
 - *shower* / **MONKEY**
 - **MOTH** / *rope*

NOTE: When the child has passed the Checkout move on to Put in Context.



Effective Tier 3 Curriculum Example





Research on T3 Intervention: Sites

- Early childhood programs in two states including
 - Head Start
 - Public School PreK programs
 - Private nonprofit program serving children with disabilities



Research on T3 Intervention: Subjects

- 100 Preschool children who met eligibility criteria for T3 intervention
 - Gate 1: below screening cut point on IGD1 Alliteration and Sound Identification
 - Gate 2: => 1SD below mean on PA subtest of TOPEL
 - Pretesting: < K beginning of year cut-point for risk on DIBELS First Sound Fluency
- Randomly assigned within classroom to Intervention or control group



Research on T3 Intervention: Subjects

Group	IEP Status (<u>N</u> / <u>%</u>)			DLL Status (<u>N</u> / <u>%</u>)		<u>Total</u>
	<u>IEP</u>	<u>Non IEP</u>	<u>Unknown</u>	<u>DLL</u>	<u>Non DLL</u>	
All	28/28%	65/65%	7/7%	49/49%	51/51%	100
Control	16/33%	30/61%	3/6%	20/41%	29/59%	49
Intervention	12/24%	35/69%	4/7%	29/57%	22/43%	51



Research on T3 Intervention: Measures

- Test of Preschool Early Literacy (TOPEL, Lonigan, Schatschneider, Torgesen, & Rashotte, 2007)
 - Phonological Awareness
 - Print Knowledge
- Preschool Early Literacy Indicators (PELI, Kaminski, Abbott, Aguayo, & Good, 2017)
 - Alphabet Knowledge
 - Phonological Awareness-Word Parts
 - Phonological Awareness-First Sounds
 - Vocabulary-Oral Language
 - Comprehension
- Dynamic Indicators of Basic Early Literacy Skills Next (DIBELS Next, Good & Kaminski et al., 2011)
 - Letter Naming Fluency
 - Word Parts Fluency
 - First Sound Fluency



Factor Analysis on Measures

	Factor 1: Print Knowledge	Factor 2: Phonological Awareness	Factor 3: Language Acquisition
TOPEL PK	0.797431	0.002128	0.049234
PELI Comp	-0.025164	-0.032849	0.815462
PELI V-OL	0.027755	0.086005	0.854011
WPF	0.027373	0.783321	0.094461
LNF	0.921364	0.001488	-0.053719
FSF	-0.029730	0.677983	-0.101270
PELI AK	0.931767	-0.003023	-0.022699
PELI PA WP	0.009638	0.725374	0.303561
PELI PA FS	0.050534	0.776998	0.069103



Composite Scores for Factors

Z scores based on Pretest scores

Measure	Mean	SD
Pre Print Knowledge Composite	.00	.94
Pre Phonological Awareness Composite	.00	.83
Pre Language Acquisition Composite	.00	.94
Post Print Knowledge Composite	.52	1.17
Post Phonological Awareness Composite	1.81	1.96
Post Language Acquisition Composite	.11	.87



Correlations for Factor Composite Scores

Score	Pre PK	Pre PA	Pre LA	Post PK	Post PA	Post LA
Pre PK	1.0000	0.1782	0.0800	0.7878	0.1219	0.0483
Pre PA	0.1782	1.0000	0.3110	0.2107	0.4781	0.2576
Pre LA	0.0800	0.3110	1.0000	0.0743	0.3579	0.7768

Note: PK = Print Knowledge. PA = Phonological Awareness. LA = Language.



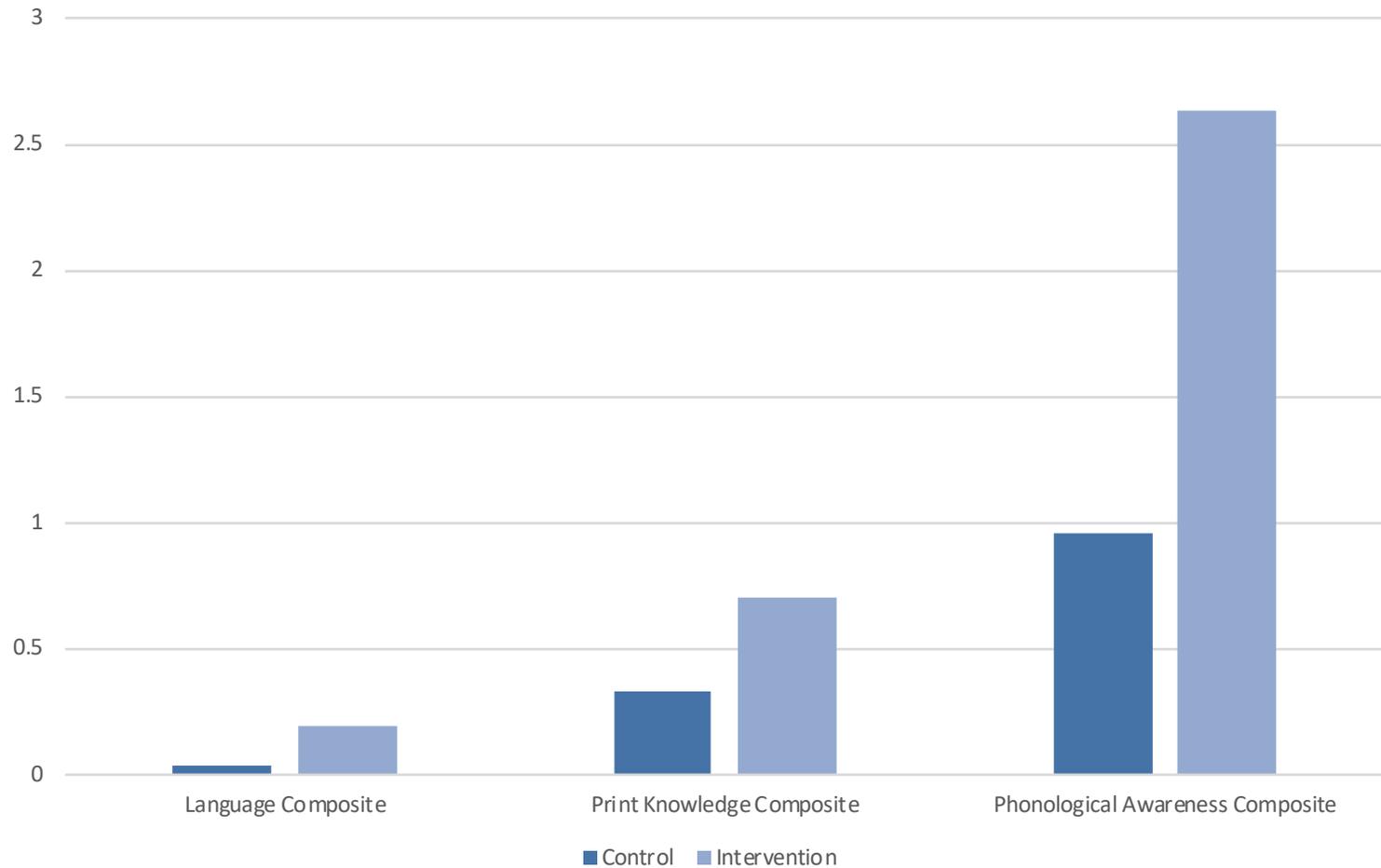
Results: Main Effect for Group

Measure	Control	Intervention	F-ratio	<i>p</i> -value	η^2
Language Acquisition Difference	.04	.19	1.43	.23	.014
Print Knowledge Difference	.33	.70	7.17	.0087	.067
Phonological Awareness Difference	.96	2.63	31.10	<.0001	.237

Note. Degrees of freedom are (1,100) for all effects.



Main Effect for Group





Treatment by IEP Status Interaction

	Df1	Df2	F-ratio	P-value	partial η^2
Language Acquisition Difference	1	91	1.30	.26	.014
Print Knowledge Difference	1	91	.19	.66	.0021
Phonological Awareness Difference	1	91	1.43	.23	.026



Treatment by DLL Status Interaction

	Df1	Df2	F-ratio	P-value	partial η^2
Language Acquisition Difference	1	98	0.01	.93	<.0001
Print Knowledge Difference	1	98	1.34	.25	.014
Phonological Awareness Difference	1	98	.34	.56	.0035



Summary

- Evidence of effectiveness of Tier 3 intervention with a group of preschool children identified as needing Tier 3 support
- No interaction effect: Intervention was equally effective with children who were dual-language learners and children who were on IEPs



Future Directions

- Replicate
 - Different sites
 - Different populations
 - Different measures
- Train teachers to implement
 - Teachers as implementers



Challenges in Implementing T3

- Identifying children for T3 intervention
- Identifying effective T3 interventions
- Managing and implement interventions
- Monitoring progress



Implementing Tier 3 Interventions

- “Thus, the implementation of Tier 3 intervention in preschool not only requires *well-designed interventions* but *careful planning and strategic classroom management*. In the preacademic and developmental skill areas (e.g., early literacy, language, math) the most effective interventions are likely to be an *integrated approach* utilizing both *highly focused small group/one-on-one instruction and intentional embedded approaches*. Such an integrated approach *maximizes effectiveness and efficiency* of teaching and learning by providing opportunities for the child to receive the individualized instruction needed to acquire new skills combined with opportunities to practice, apply, and generalize the skills in multiple contexts across the preschool day.” Kaminski, Powell-Smith, and Aquayo, 2018



Effective Small Group Instruction

Small group instruction is "one of the most underused and ineffectively implemented strategies in early childhood classrooms" (Wasik, 2008).

- The classroom needs to be organized to accommodate small group instruction daily, although all children may not participate in small group instruction daily.
- Assignment of children to small groups needs to be done intentionally based on child needs. All groups do not have to be of equal size.
- A plan for managing the groups is necessary.
- The classroom schedule and small group time will change throughout the year.

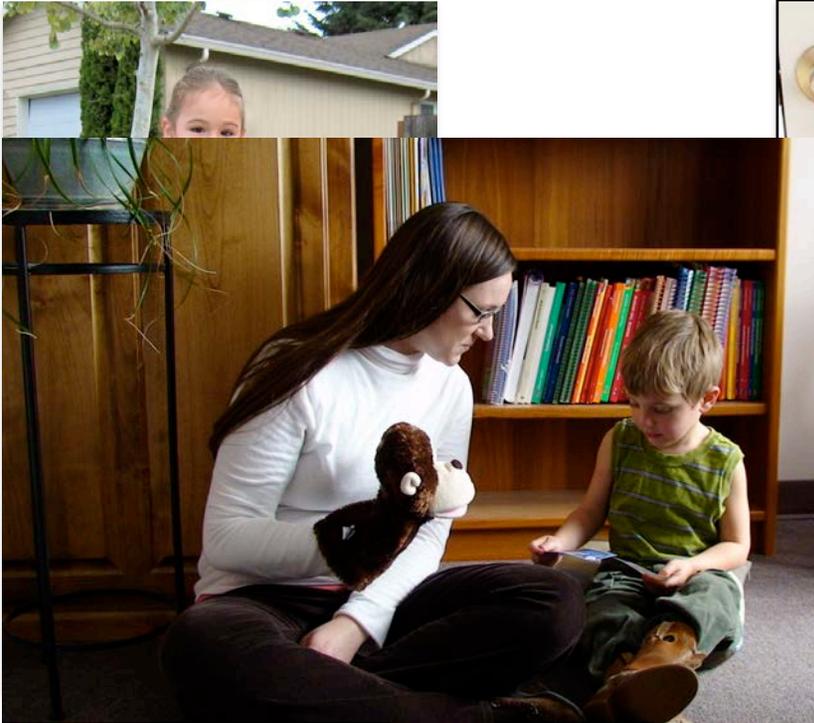


Progress Monitoring

- A key component of MTSS
- Allows for timely decisions about the effectiveness of the intervention
- Should be aligned with and integrated into T3 intervention process
- Requires assessment tools designed for progress monitoring
 - Sensitive to small changes in children’s skills
 - Relate to more distal outcomes of school readiness
 - Technically adequate
 - Appropriate for young children
 - Feasible for EC teachers



Tier 3 in Early Childhood: Do We Need It?





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Thank you

Dr. Ruth Kaminski

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