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Castledown

The Effects of Shared Book Reading on the Emotional Vocabulary Development of Preschool Children

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Abstract

Emotion vocabulary development is a skill that can be targeted in preschools using shared book reading. The purpose of this study was to examine the effects of a shared book reading intervention on the development of preschool children's emotional vocabulary. Five typically developing 4-year-old children participated in the study. A single-case research design (SCRD) was employed; specifically, a multiple probe across behaviors. The primary dependent variable was the children's ability to receptively identify emotion vocabulary depicted in Google images as well as provide correct responses to inference questions targeting emotion vocabulary. Results indicate that while all five children increased their ability to

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receptively identify emotion vocabulary and provide correct responses to questions targeting emotional vocabulary during instructional sessions, probe results were variable for both measures. Implications for research and practice are provided.

Keywords: shared book reading, single-case design, vocabulary, emotional regulation.

Instruction in emotion vocabulary is emphasized in social emotional curricula with the rationale that accurate identification and labeling of complex constructs such as "anger," "frustration," "jealousy," and "embarrassment" better enables children to understand and successfully manage situations in which these feelings arise in themselves and others (Elias, 2014). To develop a firm understanding of any new vocabulary (including emotion related vocabulary), children need challenging opportunities that require deep processing through activities such as thinking about and discussing words, and examining and articulating that thinking (McKeown et al., 2012). These opportunities are provided through teacher scaffolding of children's processing by using comments and questions that help build flexible representations of selected vocabulary likely to generalize to novel contexts and real-world situations (McKeown et al., 2012).

The development of social-emotional skills and related vocabulary can be fostered simultaneously when teachers read aloud and discuss books with social-emotional content (Doyle & Bramwell, 2006). Such books often include characters who solve problems and interact with others, providing children an opportunity to connect emotionally to these experiences and to develop emotion-related vocabulary through the conversations that occur during repeated readings, both through direct instruction of word meanings (McKeown et al., 2012) and incidental learning from conversation and play (Joseph & Strain, 2003). Moreover, discussion of storybook characters' emotions is critical for comprehension of narrative texts and supports metacognitive thinking (Westby, 2004). It can also assist in the development of emotional literacy, or the ability to recognize, label, and understand one's feelings and those of others. Developing an "emotion vocabulary" allows children to: (a) better discriminate among feelings, (b) communicate effectively with others about their feelings, and (c) engage in discussion about their personal experiences in and out of school (Westby, 2004). In sum, this vocabulary is a critical part of social emotional learning and emotional self-regulation.

Emotion Vocabulary in Storybooks

Montag and colleagues (2015) examined the vocabulary content of picture books targeted at preschoolers and found that books have greater lexical density and diversity than child-directed speech does; that is, they contain more words and more unique words. Additionally, Dawson and colleagues (2021) replicated these differences in density and diversity and found "book words" to be more sophisticated than words common in child-directed speech. Book words were more commonly nouns and adjectives, and they tended to be longer and more morphologically complex; they were also more

abstract, acquired later in development, and more emotionally arousing (Nation et al., 2022). Listening to book language therefore provides exposure to vocabulary that is quantitatively and qualitatively different from that experienced during day-to-day conversations. Books written for preschoolers contain more emotion words than child directed speech does (Dawson et al., 2021); suggesting that opportunities for learning start early. It is also reasonable to assume differences regarding outcomes for children who do not experience much book language, or those who are less able to access it fully because of language-learning difficulties. In a longitudinal study, Griffiths et al. (2020) found that language skills at age 5 to 6 years predicted emotion recognition at age 10 to 12 years, and that children with language disorders were poor at recognizing facial and vocal emotion cues. Causal relations cannot be inferred from these data, but language has been posited as a "critical ingredient" in the perception and experience of emotion (e.g., Lindquist, 2017). Perhaps the wide-ranging, varied, deep, nuanced, and sophisticated language needed to serve this function is the language that is most represented in storybooks. Shared book reading is a commonly occurring routine in preschool classrooms and can be used to support emotion vocabulary development.

Shared Book Reading (SBR)

During SBR, an adult reads to a child or group of children and engages them with the content of the book (Barnes & Puccioni, 2017). In addition, SBR serves as a useful context to introduce vocabulary specific to emotions, which can support both language and social-emotional development. It is also a valuable instructional context for enhancing emotion understanding because teachers can ask questions about the characters' emotions and children can infer feelings based on what they felt in similar situations (Spradlin & Brady, 2008). For instance, research suggests that young children respond with emotional-state talk when their teachers talk about emotion identification, causality, and inferences from the books they read (Alvarenga et al., 2020). Although the importance of shared reading has been long recognized (Noble et al., 2019), theoretical accounts of its contribution have emphasized factors such as dialogic exchange and talk about or around the text. Demir-Lira et al. (2019) found that parents used a broader range of vocabulary and more complex sentence structures during shared book-reading activities with 1- and 2-year-olds than they did in other interaction contexts, a finding consistent with book language itself being central to the importance of shared reading. Part of this effect was driven by the quality of the language parents used when talking around the text (e.g., providing descriptions of pictures), but it was mainly due to the complexity and diversity of the text itself.

Despite the large research base on SBR for developing preschoolers' emotion vocabulary, studies incorporating inferencing skills when teaching emotion vocabulary during shared book reading are limited. Many SBR interventions, particularly those following a dialogic reading (DR) approach (Arnold & Whitehurst, 1994; Whitehurst et al., 1994), inferencing is part of the type of adult–child exchange that is encouraged; however, only a few interventions focused specifically on promoting children's inferencing skills have been developed. For example, van Kleeck et al. (2006) examined the effects of 'scripted inferencing' in storybooks. In their intervention, preschoolers were read to by researchers who utilized picture books containing scripted questions.

These elaborate scripts contained either literal or inferential questions to help children understand the story, prompts to aid children in responding to these questions, as well as corrective feedback. The researchers found positive intervention effects on children's ability to respond to decontextualized talk. Similarly, Desmaris and colleagues (2013) used dialogic book-sharing, also with scripted questions, as well as scaffolding and modeling (e.g., thinking aloud) to support children in responding to the questions. Although statistically significant increases in inferential comprehension were found, improvements could not be clearly attributed to the intervention.

Preschool is an important place for social and emotional learning, and SBR is a commonly occurring routine (Martucci, 2016); however, interventions focused on inferencing to teach emotion vocabulary are limited. The current study aims to fill this gap by examining the impact of a SBR intervention, utilizing scripted questions focused on emotion identification and inference to self and others, within a preschool setting. The following research question guided this study: What is the effect of scripted, direct instruction during shared book reading on preschool children's ability to define emotion vocabulary and make inferences about emotion vocabulary?

Method

All aspects of this project were approved by the Internal Review Board at a university located in the southeastern United States.

Participants and Setting

Participants were recruited from a private childcare facility serving preschool age (i.e., 3–5-year-old) children. Participating children were first identified by the assistant director of the facility for meeting the following criteria: (a) between the ages of 4–5, (b) regular attendance for the purposes of receiving the intervention 4–5 times per week, (c) potential to benefit from the intervention due to concerns related to language and social-emotional development, and (d) English as the primary spoken language. The assistant director then distributed the consent form to parents of children who met the criteria, numbering approximately 20. Six signed consents were returned, all were selected to participate in the study. None of the children were reported as having a disability. The Clinical Evaluation of Language Fundamentals Preschool-3 (CELF Preschool-3; Wiig et al., 2020) was administered for a measure of receptive and expressive language. Table 1 provides demographic information and corresponding CELF-P3 scores.

Following this assessment, children were screened on their emotion vocabulary knowledge, including asking children to identify an emotion depicted in an image and answer inference questions related to emotion vocabulary. The screener was only administered one time. Based on this screener, targets were selected if the participant was unable to both of the following: (1) identify the emotion depicted in a Google image, and (2) provide correct responses to the inference questions related to the emotion vocabulary. Two children were ultimately dismissed from the study, one due to relocation and the other due to an inability to participate in the intervention. Children are identified throughout the study using pseudonyms.

Table 1 *Participant Demographic Information*

Pseudonym	CELF-P3 Core Language	CELF-P3 Receptive Language	CELF-P3 Expressive Language	Age (years/ months)	Ethnicity/ Gender
Nick	71	61	73	4:7	Hispanic Male
Sam	108	79	101	4:1	White Male
Wendy	102	103	104	4:6	White Female
Ryan	108	113	104	4:1	White Female

Note: CELF-P3 = Clinical Evaluation of Language Fundamental Preschool 3.

The reading intervention took place Monday-Friday at the childcare center. The interventionist retrieved the participant from their classroom and led them to a private conference room. The interventionist recorded the sessions on a phone, tablet, or computer. The interventionist followed the same procedure for each child; however, slight changes were required for two of the participants. Wendy was accompanied by a childcare center employee (as requested by parents) who sat in the room but did not participate in the intervention. Parents elected to move Sam to a different preschool setting approximately three months after the intervention began; however, the first author was able to coordinate with the director and obtained permission to continue the intervention. The interventionists were able to meet with Sam three days a week in their art room.

Materials

Approximately 15 books were initially identified because the story focused on a character displaying an emotion aligning with criteria described under procedures. This list was narrowed to 9, largely due to availability. All members of the research team (i.e., two individuals with doctorates in early childhood special education, two doctoral students in special education, and one doctoral student in early childhood) independently reviewed the 9 storybooks and determined them to be age and developmentally appropriate. Storybooks selected for use in the intervention (i.e., 9) were scripted for use by the interventionists. Appendix A provides an example script for one of the storybooks utilized in the study, *Grumpy Monkey* by Susanne Lang. The interventionist utilized the book, corresponding script, and a recording device during the intervention.

Dependent Variable

The primary dependent variable was the percentage of correct responses on the probe, as measured by a researcher created scoring system. For each target word, three

questions were asked to determine whether participants could: (a) identify the target emotion word from a Google image (e.g., "What is this person feeling?"), (b) provide a correct response (i.e., one that was taught during the intervention) for an inference question related to themselves using the target emotion vocabulary word (e.g., "What is something you could do when you feel grumpy?"), and (c) provide a correct response (i.e., one that was taught during the intervention) for an inference question related to others question using the target emotion vocabulary word (e.g., "What could you do to help someone else who was feeling grumpy?"). Each question required the participant to access information in order to provide a correct answer, thereby making each question functionally distinct. Different Google images were used for each probe condition and were selected because they depicted a child displaying an emotion similar to the emotion depicted in the storybook. For example, in the book *Grumpy Monkey*, the main character was repeatedly told that his eyebrows were "bunched." Therefore, Google images with children whose eyebrows were also "bunched," were selected. Both the first and second author reviewed the Google images for adherence to these procedures and agreed to include the image or select a different one.

Verbal responses were recorded and coded using the scoring system in Table 2. Participants could score a maximum of 3 points on the emotion identification question, and a maximum of 6 points on the inference questions related to self and others using the target emotion vocabulary word. All probe and intervention sessions were recorded using Vosaic, a cloud-based, secure platform for storing and coding videos. Interventionists live coded all probe sessions; research assistants were trained to code all intervention sessions.

Experimental Design

Single-case research design methodology was employed in this study. Specifically, a multiple probe across word sets design was used to determine the impact of the intervention on participants' expressive and receptive emotion vocabulary knowledge. A multiple probe design allows the researcher to collect baseline data periodically over the course of the study, thereby limiting participant fatigue associated with long baseline conditions (Intepe-Tinger & Whalon, 2022). In this study, the multiple probe design was presented in phases to form their own condition (Gast et al., 2018, p. 246). This design is appropriate as academic skills are more likely irreversible (Ledford & Gast, 2018). The independent variable was introduced following an initial probe phase consisting of at least three data points. Then, intervention on the first set of target words was implemented until the participant reached the criteria (Intepe-Tinger & Whalon, 2022). To meet the criteria, the participant had to show an increasing/stable trend or reach a minimum of five data points. After reaching the criteria, vocabulary probes were administered.

Procedures

The interventionists included two master's degree students, one in special education and the other in social work. Selection of target emotion words was completed using a multi-step procedure. First, a list of possible targets was drawn from Joseph

Table 2 *Scoring System*

Points	Question Type (Literal/Inferential)	Criterion	Sample Response
1	What is the character feeling? (Point to picture while prompting)	Correct response aligns with emotion in illustration	Frustrated
	What is something you do when you feel X?	Response aligns with examples provided during instruction	I ask for help; I take a deep breath
	What could you do if someone else felt X?	Response aligns with examples provided during instruction	Give them a hug or a soft touch; offer to help them
	Or		Or
	How would you know if someone else felt X?		Their face was scrunched up; They were crying
0	What is the character feeling? (Point to picture while prompting)	Incorrect response given; no response	Angry I hit my friend
	What is something you do when you feel X? What could you do if someone else felt X?	Response is inappropriate; no response	Ignore them; walk away
	Or		Or
	How would you know if someone else felt X?	Response is inappropriate; no response	They are smiling; They are laughing

& Strain (2003), identified as "complex feeling words" and age-appropriate for 3–5-year-old children. This list of approximately 65 was compared to Baron-Cohen's developmental survey of 336 emotion words (Baron-Cohen et al., 2010). Teachers and parents rated whether children of a specific age (ages 4–16) "clearly understood," "possibly understood," or "not understood" each word (Baron-Cohen et al., 2010). After comparison, the list was narrowed to 20 that included words that parents and teachers rated as being understood by 25% or fewer children ages 4–6 (e.g., *cooperative*, *impatient*, *relaxed*, etc.). The final nine target words (i.e., *grumpy*, *determined*, *courageous*, *confused*, *embarrassed*, *curious*, *anxious*, *worried*, *disappointed*) were determined based on the availability and developmental appropriateness of storybooks using that word as previously described, and then randomly assigned to three-word sets (i.e., three words/set). Targets were reassigned to different sets to avoid confusion with words that were conceptually similar (e.g., *anxious/disappointed/worried*). The intervention was delivered 4–5 days per week for approximately 14 weeks. Each session took between 15–30 minutes.

Probe Condition. The interventionists administered probes, and all administration and scoring procedures followed those outlined in the dependent variable section. In all probe sessions, participants were asked to label the target word and respond inference questions related to emotion vocabulary. During the second probe condition, it was noted that participants were not able to identify the provided emotion image (i.e., generalized outcome) for the taught words in the first word set. To address this issue, both the context bound outcome (i.e., instructional image) and generalized outcome were included in all subsequent probe sessions. Similarly, scores on participants' responses to both types of taught inference questions remained low or were scored as a zero. For example, the participant provided a response of either *I don't know* or a repeated or non-sensical response (e.g., *I'll drink water*) for the question (e.g., *What could you do to help someone else who is feeling grumpy?*). To address the limited progress on this context bound outcome, a scaffolding sequence was introduced. In step 1, the inference prompt was provided (e.g., *What is something you could do if you feel grumpy?*). If the response was correct, feedback was provided for working hard. If the response was incorrect (i.e., matching those previously described), the interventionist would move to step 2 and show an image corresponding to the target emotion word, and ask the inference prompt again. Again, feedback was provided for working hard if a correct response was given. If incorrect, the interventionist moved to step 3 and provided the inference prompt with a choice reduction (i.e., *What is something you could do if you feel grumpy, would you scream or would you count to 10?*). Feedback was provided for working hard if a correct response was given. If the participant provided an incorrect response or did not respond after 5 seconds, the researcher moved to the next item without providing any feedback or error correction.

Intervention. The intervention consisted of individual SBR sessions with each participant. Interventionists utilized scripted prompts before and during reading for each storybook. Prior to reading, the interventionist previewed the target word as follows: (1) asked the child to repeat the word, (2) provided a child-friendly definition, and (3) described the provided Google image corresponding to the emotion targeted in the storybook while providing statements related to the emotion identification prompt (e.g., *This girl is grumpy, she looks upset. You can tell by looking at her face, her eyebrows are bunched up*), inference to self-prompt (e.g., *If you feel grumpy, you could find your favorite toy; this boy loves his teddy bear!*), and inference to others prompt (e.g., *If someone else is feeling grumpy, you could offer to play together; these girls are building with blocks.*). The interventionist kept all 3 images displayed throughout the reading and encouraged the child to refer to them as needed.

During reading, the interventionist followed scripted procedures such that the emotion identification, inference to self, and inference to others' prompts were each provided 3 times during each book reading session. Corrective feedback for the emotional identification prompt was provided as follows: (a) reinforcement for a correct response (e.g., *That's right, it's called grumpy*), and (b) a direct model for an incorrect response (e.g., *It's called grumpy*). The interventionist followed with an expansion (e.g., *Grumpy is when you feel upset*) and request for the child to repeat (e.g., *Say, 'grumpy is when you feel upset'*). For the inferencing to self and others prompts, a correct response was reinforced and followed with an expand and repeat prompt as previously described. For an incorrect response, a scaffolding sequence was initiated

that included a reduction of choices (e.g., *If you were feeling grumpy, would you find your favorite toy or would you be mean to people?*); for a second incorrect response, a direct model was provided. In both cases, the expand and repeat prompts were provided as previously described.

Inter-observer Agreement

Four graduate research assistants (GRAs) in early childhood/special education independently scored all probe and intervention sessions. The first author trained all GRAs using mock videos until 90% agreement on three consecutive videos was reached. Once reliable, one GRA served as the primary coder, and another GRA coded a randomly selected 30% of sessions from each study phase (i.e., probe and intervention). All probe responses were recorded verbatim and double scored by the first author and a GRA. For Nick, interobserver agreement (IOA) was 93% (91%–100%) in intervention and 100% in probe conditions. For Ryan, IOA was 95% (93%–100% in intervention and 97% (94%–100%) in probe conditions. For Wendy IOA 97% (86%–100%) in intervention and 100% in probe conditions. For Sam IOA was 100% in intervention and 100% in probe. Coders reached 100% agreement after discussion.

Procedural Fidelity

Prior to the study, interventionists were trained on intervention and probe procedures using fidelity checklists. Fidelity checklists for each condition included procedures to ensure the interventionist conducted the study as intended. All coders received training until they reached a minimum of 100% agreement on three out of three consecutive mock videos. A randomly selected 30% of the sessions from each condition for each participant was coded. For Nick the procedural fidelity was 100% for intervention and probe conditions. For Wendy the mean was 98.25% (96%–100%) for the intervention and 100% for probe conditions. For Ryan the mean was 99.6% (97%–100%) for the intervention and 100% for probe conditions. For Sam the mean was 96.5% (94%–100%) for the intervention and 100% for the probe.

Data Analysis

Visual analysis is the gold standard for analyzing data in single-case research design (SCRD) and was used to measure the effects of the intervention on target behaviors (Ledford & Gast, 2018). The primary goal of visual analysis is to identify if a functional relation exists between the introduction of an intervention and change in a socially desirable behavior, as well as replicate effects across multiple participants. Visual analysis is sensitive to changes in behavior and allows researchers to analyze each participant's behavior through repeated measurement and evaluation, allowing observation of abrupt, as well as subtle changes over time (Land & Gast, 2014). Children's demonstration of knowledge of emotional vocabulary (i.e., identification and inferencing) was calculated, graphed, and analyzed for level, trend, variability/stability, and overlap within each condition.

Results

Figures 1 to 4 present data for all conditions by target word set, with a separate Figure for each participant. The graphed data represent the percentage of correct responses on the emotion identification and inference questions (i.e., self and others) related to emotion vocabulary probes (probe conditions) and emotion identification and inference (i.e., self and others) related to emotion vocabulary (intervention condition) by word set.

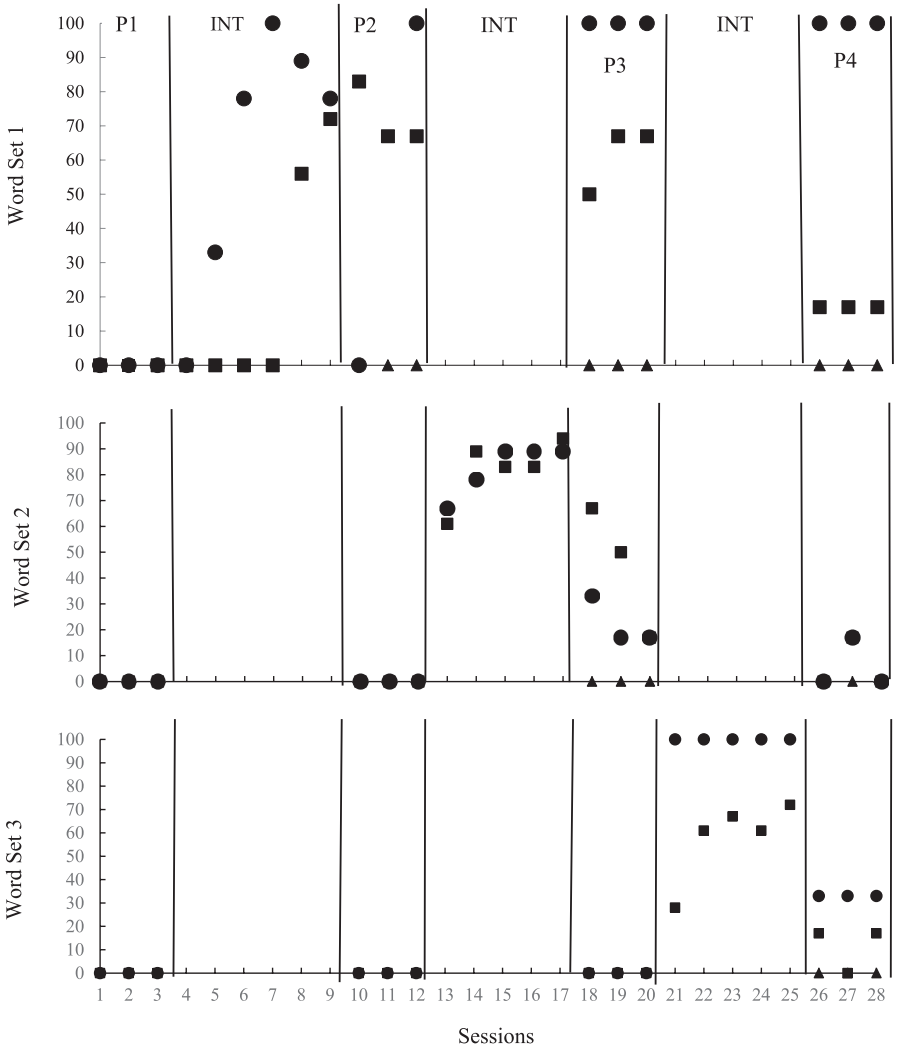


Figure 1 *Percentage of Correct Respones for Nick.*
Note: ● = emotion identification; ■ = inferencing; ▲ = generalization

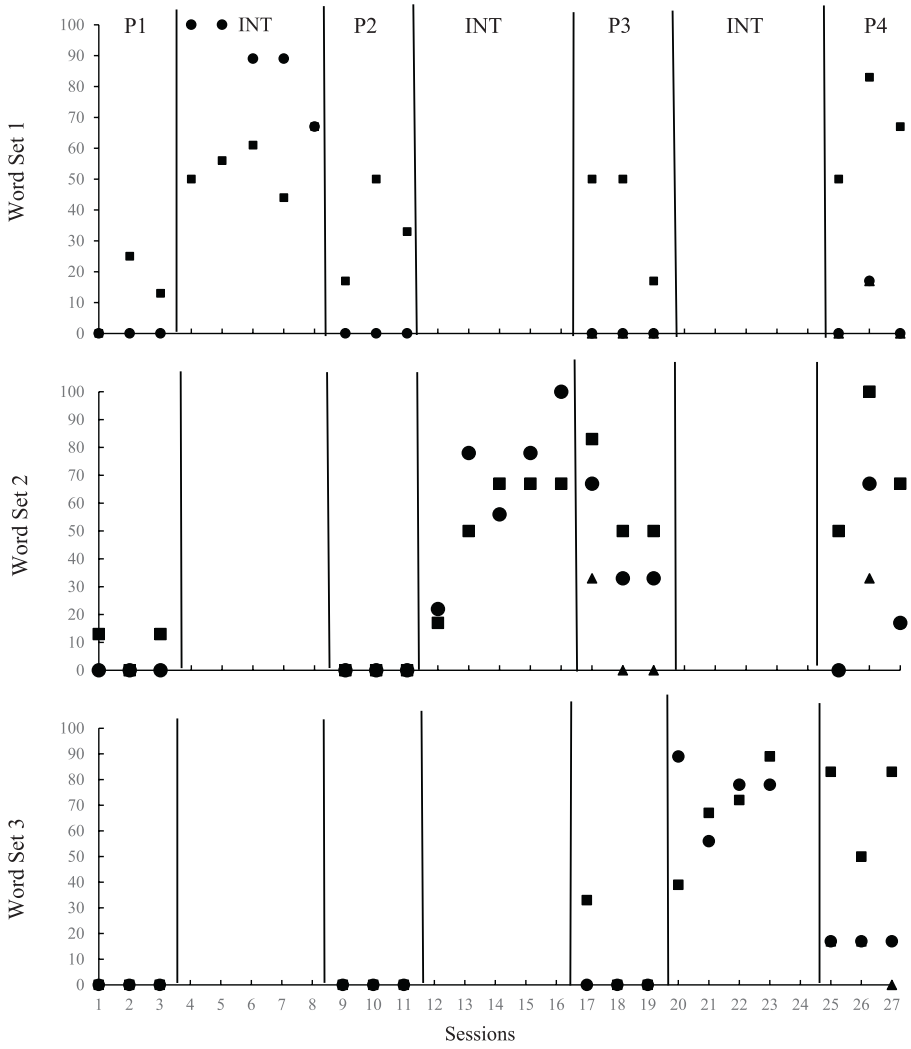


Figure 2 *Percentage of Correct Respones for Wendy.*
Note: ● = emotion identification; ■ = inferencing; ▲ = generalization

Nick

Nick's correct responses in word set 1 probe phase was zero. Once intervention was introduced, Nick correctly identified emotion images, with variable scores ranging from 33% to 100% (average = 76%), for the remaining instructional sessions. No change was observed on either type of inference prompt; therefore, two additional instructional sessions with scaffolding previously described, were provided. The last two sessions showed an average of 64% correct responses. In the second probe condition, Nick's scores increased for both emotion identification ranging from 0%–100% (average =

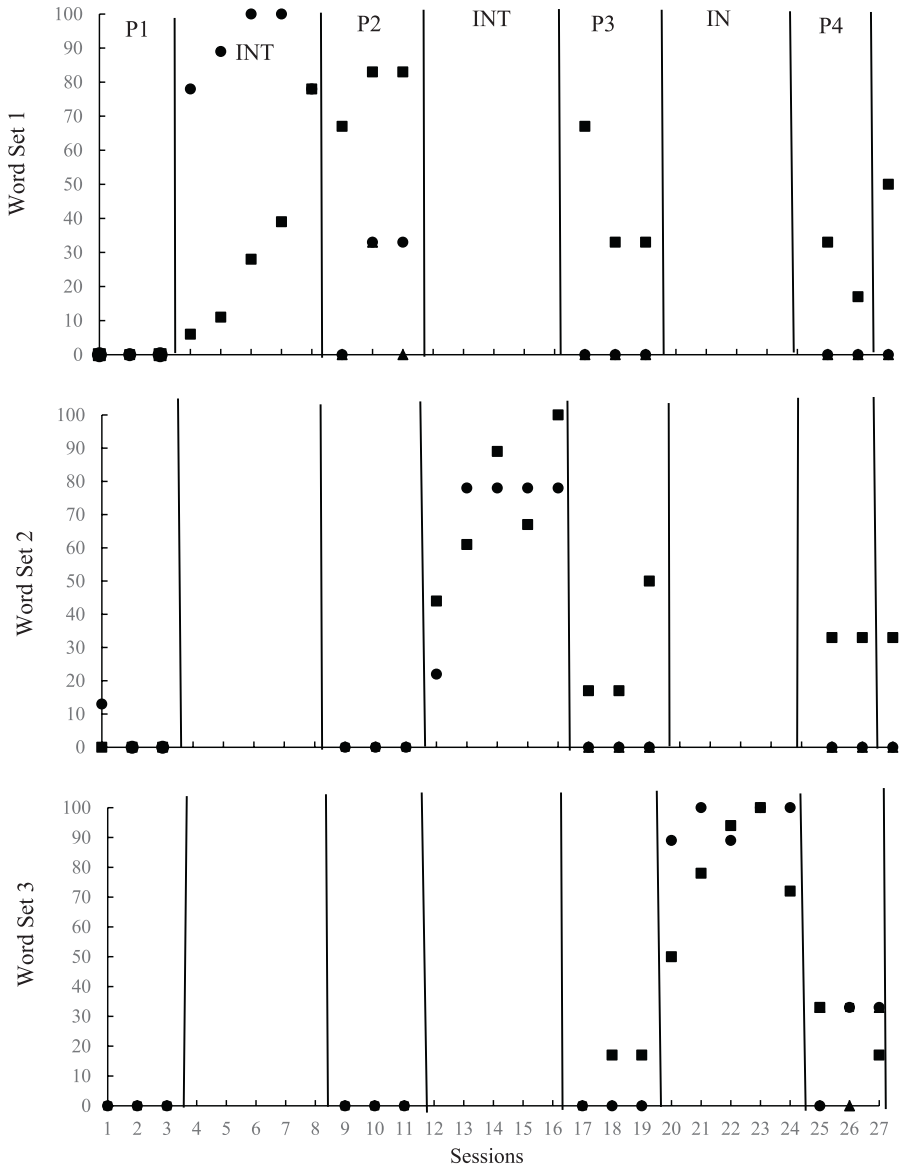


Figure 3 *Percentage of Correct Responses for Ryan.*
Note: ● = emotion identification; ■ = inferencing; ▲ = generalization

67%) and inference prompts ranging from 67%–83% (average = 72%), demonstrating a shift in level. In the remaining two probe sessions, Nick's scores on the emotion identification remained at 100% for both. Nick's inference prompts in the 3rd probe session remained steady with a range from 50%–67% (average = 61%), but decreased

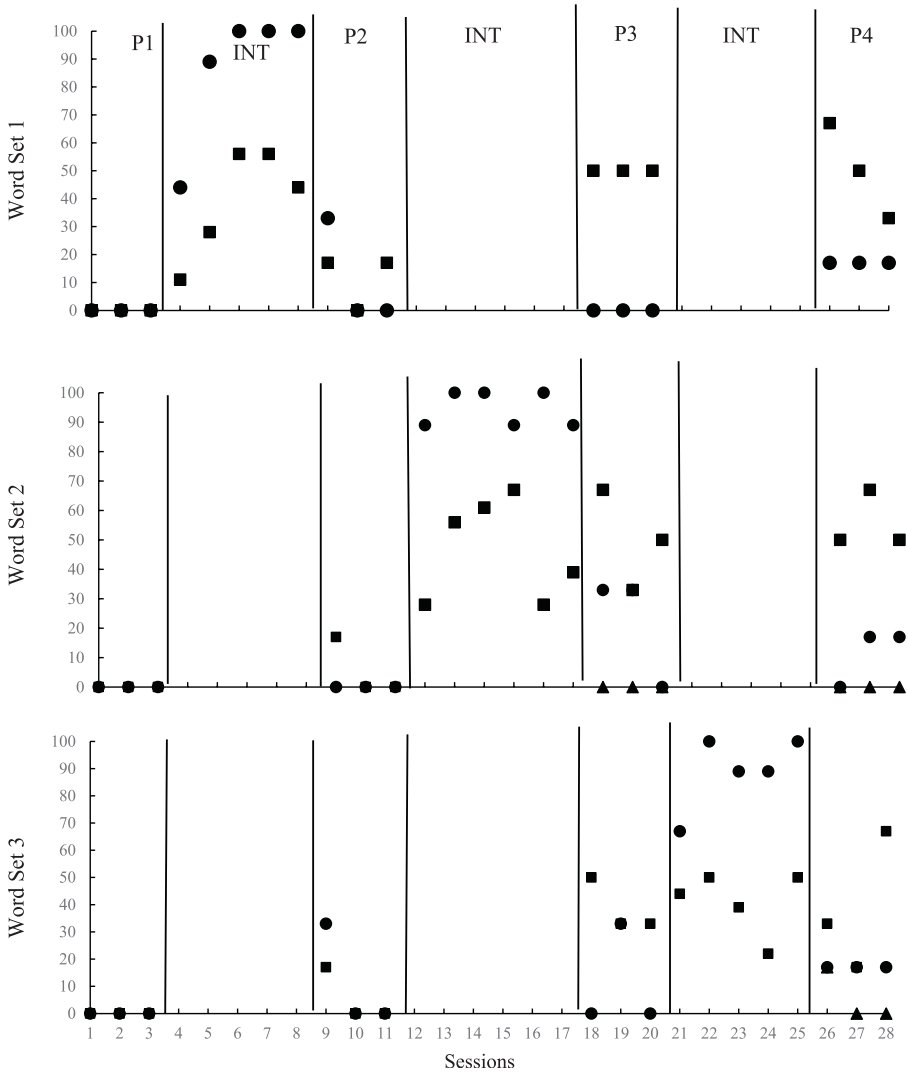


Figure 4 *Percentage of Correct Responses for Sam.*
Note: • = emotion identification; ■ = inferencing; ▲ = generalization

significantly in the last probe session, averaging 17%. No overlap was detected between probe phases before and after the intervention.

In the initial word set 2 probe condition, Nick scored zero percent for both emotion identification and inference prompts. Nick provided correct responses for both skills when the intervention was introduced, ranging from 67% - 89% (average = 82%) for emotion identification and 61%–94% (average = 82%) for inference prompts. In the probe phase following intervention, Nick's percentage of correct responses

increased slightly, ranging from 17%–33% (average = 22%) for emotion identification and 17%–67% (average = 45%) for inference prompts. Data on the final probe reflects a decrease in level for both skills, ranging from 0%–17% (average = 6%). Some overlap was noted between the last two probe sessions.

In word set 3, Nick's percentage of correct responses in probe phases prior to intervention was at zero for both skills. When the intervention was introduced, Nick immediately answered questions correctly, reaching 100% across all 5 sessions for emotion identification. Nick also correctly answered inference prompts and remained high and stable across the sessions ranging from 28%–72% (average = 58%). In the following probe condition, Nick's percentage of correct responses for emotion identification decreased to an average of 33% and 11% for inference prompts. Although lower than intervention, data in the probe condition remained slightly higher than phases prior to intervention with only one data point overlapping.

Wendy

Wendy's correct responses in word set 1 probe phase for emotion identification was zero. Inference prompts were low, averaging 19%. Upon introducing the independent variable, Wendy's correct responses to emotion identification questions improved, ranging from 67%–100% (average = 89%) and inference prompts ranging from 44%–67% (average = 56%). In probe condition 2, Wendy's correct responses to emotion identification returned to near baseline levels ranging from 0%-17% (average = 4.25%). Inference prompts ranged from 17%–50% (average = 33%). Although low, only one data point overlapped with the probe phase prior to intervention. In the two remaining probe phases, Wendy remained at near zero levels for emotion identification. For inference prompts, Wendy's correct responses ranged from 17%–83% (average = 53%); overlap with previous probe phases was noted.

In word set 2 initial probe conditions, Wendy scored zero on emotion identification and was low and stable on inference prompts. Upon introduction of the intervention, Wendy provided correct responses on emotion identification ranging from 22%–100% (average = 67%) and on inference prompts ranging from 17%–67% (average = 54%). When examining the probe phase following intervention, Wendy's percentage of correct responses ranged from 33%–67%, demonstrating a shift in level from the first probe. No overlap was detected between probe phases before and after invention. Wendy's emotion identification in the final probe was variable ranging from 0%–67% (average = 28%); inference prompts maintained, averaging 72%. There was some overlap.

In word set 3, Wendy's correct percentage of responses in the initial probe phases was low for both emotion identification and inference prompts. Percentage of correct responses improved immediately following introduction of the intervention, averaging 75% and 67% respectively for emotion identification and inference prompts. Due to a technology malfunction, a fifth data point was not recorded. Following the intervention, Wendy's correct responses for emotion identification were low, with no overlap between probes prior to and after the intervention. For inference prompts, there was a clear shift in level, with an average of 72%, there was no overlap.

Ryan

Ryan's correct responses on word set 1 probe phase for emotion identification and inference prompts was zero. Percentage of correct responses immediately following instruction, with emotion identification ranging from 78% to100% (mean = 89%) and from 6% to 78% (mean = 32.4%) for inference prompts. In the probe phase following intervention, a clear shift in level was evident from the initial probe phase, with emotion identification averaging 22% and inference prompts averaging 78%. No overlap was detected between probe phases prior to and immediately after the intervention. Overlap for emotion identification was noted in the last two probe sessions for word set 1, when correct responses returned to zero. Inference prompts were variable in the last two probe sessions, ranging from 17% to 67%, with some overlap noted.

In word set 2 initial probe conditions, Ryan was unable to correctly answer questions related to emotion identification or inferencing, levels were low. After intervening, an immediate change in correct responses for emotion identification ranging from 22% to 78% (mean = 67%) and inference prompts ranging from 44% to 100% (mean = 72%) were observed for Ryan. In the probe phase immediately following intervention, emotion identification returned to zero and inference prompts were stable at 33%; overlap was observed.

In word set 3, Ryan's percent of correct responses in the initial probe phases were low and stable, for both emotion identification and inference prompts. When the intervention was introduced, Ryan immediately responded correctly to emotion identification questions ranging from 89% to 100% (mean = 96%) and inference prompts questions ranging from 50%–100% (mean = 79%). In the probe session immediately following the intervention, Ryan demonstrated a slight level shift for emotion identification, averaging 22% with one data point overlapping. A slight level shift was also noted for inference prompts, averaging 28% with one overlapping data point.

Sam

Sam's correct responses to word set 1 in the initial probe phase was zero for both skills. Once intervention was introduced, Sam immediately answered emotion identification questions correctly, ranging from 44% to 100% (mean = 87%) as well as inference prompts ranging from 11% to 56% (mean = 39%). In the probe phase immediately following intervention, Sam's emotion identification averaged 11%, slightly above the initial probe phase, but with overlap noted. Inference prompts averaged 11%, with a slight level shift; no overlap was noted. Overlap for all data points was noted for emotion identification and a slight level shift with an average of 17% for inference prompts during the third probe was noted. In the final probe, emotion identification showed a slight level shift with an average of 17%, and inference prompts averaged 50%, with some overlap noted.

In the word set 2 initial probe conditions, levels were low and stable for both skills. Sam immediately answered questions correctly when the intervention was introduced, with emotion identification averaging 95% and inference prompts ranging from 28% to 67% (mean = 47%). In the probe session immediately following intervention, a shift

in level was observed for both skills. Emotion identification averaged 22%, with one overlapping data point and inference prompts averaging 50%, no overlap was observed. Emotion identification shifted downward in the final probe session, averaging 11% with overlap, while inference prompts maintained with an average of 56%, also with overlap.

For word set 3, Sam's percent of correct responses in the initial probe phases for emotion identification was low and stable averaging 7%; inference prompts were variable, ranging from 0% to 50% (mean = 15%). When the intervention was introduced, Sam's correct responses increased to an average of 89% for emotion identification and 41% for inference prompts. Emotion identification averaged 17% in the final probe session, overlap with previous probe sessions was noted. Inference prompts were again variable, ranging from 17% to 67% (mean = 39%), overlap with prior probe phases was also noted.

Generalization

The generalization outcome measure for emotion vocabulary identification was included in each probe session for all four participants and for all word sets. Participants demonstrated low levels for this measure across all probe sessions.

Discussion

The purpose of this study was to investigate the impact of systematic, direct vocabulary instruction on the ability of preschool children to identify and infer knowledge about emotion words. Using a multiple probe design across word sets, visual analysis indicated all participants were able to gain knowledge about emotion vocabulary during instruction, although results were variable for both emotion identification and inferencing to self and others in the probe sessions. Participants had opportunities to generalize emotion identification during probe sessions, but results were low and variable.

Understanding emotion is a key component of emotional competence and refers to the conceptual knowledge of emotions, including being able to identify the expression on another child's face or to understand what or how people feel in common situations (Streubel et al., 2020). Additionally, research suggest that language plays a critical role in the acquisition and development of emotion understanding (Cole et al., 2010; Harris et al., 2005; Holodynski et al., 2013; Pons et al., 2003). Findings from this study add to the limited research base on emotion vocabulary instruction for preschool children, specifically focusing on the skills of identification and inferring about the emotions of oneself and others.

In this study, children's ability to recognize and infer knowledge about their own and others' emotions was supported through SBR (Arnold et al., 2012; Curby et al., 2015; Denham & Brown, 2010; Nakamichi et al., 2019; Poulou, 2019; Trentacosta & Fine, 2010). Children were provided with multiple opportunities to hear, see, and engage in discussion with an adult about specific emotion vocabulary. As suggested by Joseph and Strain (2003), adults can foster emotional vocabulary by directly teaching emotion words and their definitions, as well as naturally during conversation, play,

and through special activities. Adults can teach emotion words directly by pairing a picture or photo of a feeling face with the appropriate affective label, for example, during SBR. Additionally, young children can be taught how to detect the cues of how someone is feeling by having their attention drawn to the salient physical features of someone's affective state, another feature incorporated into the scripted book reading sessions. In this study, the interventionists modeled detecting how someone is feeling by looking at their face (i.e., noticing their eyebrows, their eyes, and their mouth). Utilizing these strategies during instructional sessions demonstrates the importance of adult interactions when engaging children about their emotions.

Consistent with previous research (e.g., Pentimonti et al., 2017; Roberts & Kaiser, 2015), this study utilized scaffolding procedures to respond to participants' language by expanding on their utterances and recasting language into more mature forms to provide linguistically rich, contingent models. Finally, and we believe the biggest contribution to the research base, is integrating both identification of and inferring knowledge about emotion vocabulary into a shared book reading intervention with preschool age children. While results were variable across all participants during the probe conditions, all children were able to demonstrate improvement in their abilities to identify and respond to inference questions about emotion vocabulary. Therefore, we see the value in teaching young children complex emotion vocabulary to support their overall social and emotional development in the later years.

Limitations

Several limitations to this study must be addressed. First, is the variability within the probe sessions across the four participants. Even after including additional scaffolds during probe sessions, participants were not consistently able to identify emotion images or provide correct responses to the inference to self and others' questions. Children acquire emotion labels slowly and in a certain developmental order (Widen & Russell 2003; 2008). Through tasks such as labeling emotional faces and stories, researchers found the labels *happy*, *angry*, and *sad* appeared early and were used more frequently, whereas the labels for *fear*, *surprise*, and *disgust* appeared later and were used less frequently in different samples of preschoolers aged 2–5 years (Widen & Russell, 2003). It is possible the emotion words targeted in this study were too difficult for the participants to identify in a Google image, or the Google images themselves were not sufficiently representative of such complex emotions. Google images were retrieved by searching for "children demonstrating [emotion]." Two authors independently evaluated the selected images to determine their likeness to the images depicted in the storybook. Effective measures for generalizing emotions often depicted by animals in storybooks to human faces depicting the same emotions, is a consideration for future research.

As well, appropriate responses to inference to self and others' questions were at times overgeneralized, children often confused responses to the inference to self and others' questions as new emotion vocabulary was acquired. Despite gains seen during instructional sessions, it was difficult to determine if participants were drawing from knowledge about emotion vocabulary taught in previous word sets, or from knowledge about the emotion vocabulary taught during a specific intervention session or word set.

Finally, future studies should be conducted with a larger and more diverse sample of preschool age children.

Implications for Research and Practice

This study has implications for early childhood educators' practice. SBR is a common routine in preschool settings; therefore, incorporating books that are rich in vocabulary, including emotion words, would be feasible. In this study, popular and readily available storybooks that included emotion words were used. The storybooks are relatively inexpensive, and most schools would be able to access the books through Amazon™ or local library. Using scripted questions and scaffolding procedures like those in this study and others (see van Kleeck et al., 2008) could be helpful for educators who want to introduce more complex emotion vocabulary to the children in their preschool classrooms, while providing the necessary supports and corrective feedback for them to successfully acquire the words.

Vocabulary instruction, specifically focused on emotions, can be helpful in supporting children's social and emotional development. Social emotional skills in preschool age children might include noticing and responding appropriately to others' emotions, appropriately expressing their own emotions, noticing and helping peers, and engaging in problem solving (Artman-Meeker et al., 2017). Future research could look at expanding instruction to include other teachable moments. For example, children can be encouraged to use the word in appropriate contexts throughout the day or week, across different classes, or can be assigned a homework activity in which they have to use the word with a parent or caregiver (Murphy et al., 2023).

Adequately capturing children's ability to identify emotions as well as provide reasonable responses to inference to self and others' questions was difficult during probe sessions. Dynamic assessment may be one way to address this concern. Dynamic assessments are matched to instructional procedures and allow opportunities for feedback during testing or progress monitoring to determine how children respond to instruction related to the target skill (Catts, 2017). Feedback and predetermined prompts can be provided until the child responds correctly. This type of assessment provides information on the child's current level of independence with a skill/task and how responsive the child is to instruction targeting that skill. Future research could utilize this type of assessment.

References

Alvarenga, P., Zucker, T. A., Tambyraja, S., & Justice, L. (2020). Contingency in teacher-child emotional state talk during shared book reading in early childhood classrooms. *Early Education and Development*, *31*(8), 1187–1205. https://doi.org/10.1080/10409289.2020.1722786

Arnold, D. H., Lonigan, C. J., Whitehurst, G. J., & Epstein, J. N. (1994). Accelerating language development through picture book reading: Replication and extension to a videotape training format. *Journal of Educational Psychology, 2*, 235–243. https://doi.org/ 10.1037/0022-0663.86.2.235

Arnold, D. H., Kupersmidt, J. B., Voegler-Lee, M. E., & Marshall, N. A. (2012). The association between preschool children's social functioning and their emergent

academic skills. *Early Childhood Research Quarterly, 27*(3), 376–386. https://doi.org/10.1016/j.ecresq.2011.12.009

Artman-Meeker, K., McLaren, E., Hemmeter, M. L., & Grisham-Brown, J. (2017). Blended practices for promoting social-emotional development in young children. In J. Grisham Brown, & M. L. Hemmeter (Eds.), *Blended practices for teaching young children in inclusive settings* (pp. 201–246). Brooks.

Barnes, E., & Puccioni, J. (2017). Shared book reading and preschool children's academic achievement: Evidence from the early childhood longitudinal study-birth cohort. *Infant and Child Development, 26*(6), e2035. https://doi.org/10. 1002/icd.2035

Baron-Cohen, S., Golan, O., Wheelwright, S., Granader, Y., & Hill, J. (2010). Emotion word comprehension from 4 to 16 years old: A developmental survey. *Frontiers in Evolutionary Neuroscience, 2*. https://doi.org/10.3389/fnevo.2010.00109

Catts, H.W. (2017). Early identification of reading disabilities. In K. Cain, D. Compton, & R.K. Parrila (Eds.), *Theories of reading development* (pp. 311–332). Benjamins.

Cole, P. M., Armstrong, L. M., & Pemberton, C. K. (2010). The role of language in the development of emotion regulation. In S. D. Calkins & M. A. Bell (Eds.), *Child development at the intersection of emotion and cognition* (pp. 59–77). American Psychological Association.

Curby, T. W., Brown, C. A., Bassett, H. H., & Denham, S. A. (2015). Associations between preschoolers' social-emotional competence and preliteracy skills. *Infant and Child Development, 24*(5), 549–570. https://doi.org/10.1002/icd.1899

Dawson, N., Hsiao, Y., Tan, A. W. M., Banerji, N., & Nation, K. (2021). Features of lexical richness in children's books: Comparisons with child-directed speech. *Language Development Research*, *1*(1), 9–53. https://doi.org/10.34842/5we1-yk94

Demir-Lira, E., Applebaum, L. R., Goldin-Meadow, S., & Levine, S. C. (2019). Parents' early book reading to children: Relation to children's later language and literacy outcomes controlling for other parent language input. *Developmental Science*, *22*(3), Article e12764. https://doi.org/10.1111/desc.12764

Denham, S. A., & Brown, C. (2010). "Plays nice with others": Social-emotional learning and academic success. *Early Education and Development, 21*(5), 652–680. https://doi.org/10.1080/10409289.2010.497450

Desmarais C, Nadeau L, Trudeau N, et al. (2013). Intervention for improving comprehension in 4–6 year old children with specific language impairment: Practicing inferencing is a good thing. *Clinical Linguistics and Phonetics 27*: 540–52. https://doi.org/10.3109/02699206.2013.791880

Doyle, B. G., & Bramwell, W. (2006). Promoting emergent literacy and social-emotional learning through dialogic reading. *The Reading Teacher, 59,* 554–564. https://doi.org/10.1598/RT.59.6.5

Elias, M. J. (2014). Social-emotional skills can boost Common Core implementation. *Phi Delta Kappan, 96*, 58–62. https://doi.org/10.1177/0031721714557455

Gast, D. L., Lloyd, B. P., & Ledford, J. R. (2018). Multiple baseline and multiple probe designs. In J. R. Ledford & D. L. Gast (Eds.), *Single case research methodology: Applications in special education and behavioral sciences* (3rd ed., pp. 239–282). Routledge.

Griffiths, S., Goh, S. K. Y., Norbury, C. F., & the SCALES team. (2020). Early language competence, but not general cognitive ability, predicts children's recognition of

emotion from facial and vocal cues. *PeerJ*, *8*, Article e9118. https://doi.org/10.7717/peerj.9118

Harris, P. L., de Rosnay, M., & Pons, F. (2005). Language and children's understanding of mental states. *Current Directions in Psychological Science, 14*, 69–73. https://doi.org/10.1111/j.0963-7214.2005.00337.x

Holodynski, M., Hermann, S., & Kromm, H. (2013). Entwicklungspsychologische Grundlagen der Emotionsregulation [Developmental psychological foundations of emotion regulation]. *Psychologische Rundschau, 64*(4), 196–207. https://doi.org/10.1026/0033-3042/a000174

Intepe-Tingir, S., & Whalon, K. (2023). Teaching emotion vocabulary to children with autism spectrum disorder. *The Journal of Special Education*, *56*(4), 193–207. https://doi.org/10.1177/00224669221083341

Joseph, G., & Strain, P. (2003). Enhancing emotional vocabulary in young children. *Young Exceptional Children, 6*(4), 18–26. https://doi.org/10.1177/109625060300600

Lane, J. D., & Gast, D. L. (2014). Visual analysis in single case experimental design studies: Brief review and guidelines. *Neuropsychological Rehabilitation, 24*, (3–4), 445–463. https://doi.org/10.1080/09602011.2013.815636

Ledford, J. R., & Gast, D. L. (Eds.). (2018). *Single case research methodology*. Routledge.

Lindquist, K. A. (2017). The role of language in emotion: Existing evidence and future directions. *Current Opinion in Psychology*, *17*, 135–139. https://doi.org/10.1016/j.copsyc.2017.07.006

Martucci, K. (2016). Shared storybook reading in the preschool setting and considerations for young children's theory of mind development. *Journal of Early Childhood Research, 14*(1), 55–68. https://doi.org/10.1177/1476718X14523750

McKeown, M. G., Beck, I. L., & Sandora, C. (2012). Direct and rich vocabulary instruction needs to start early. In Kame'enui E.J., Baumann J.F. (Eds.), *Vocabulary instruction: Research to practice* (2nd ed.). (pp. 17–33). Guilford.

Montag, J. L., & MacDonald, M. C. (2015). Text exposure predicts spoken production of complex sentences in 8- and 12-year-old children and adults. *Journal of Experimental Psychology: General*, *144*(2), 447–468. https://doi.org/10.1037/xge0000054

Murphy, K. A., Pentimonti, J. M., & Chow, J.C. (2023). Supporting children's language and literacy through collaborative shared book reading. *Intervention in School & Clinic, 58*(3), 155–163. https://doi.org/10.1177/10534512221081218

Nakamichi, K., Nakamichi, N., & Nakazawa, J. (2019). Preschool social-emotional competencies predict school adjustment in Grade 1. *Early Child Development and Care, 4*, 1–14. https://doi.org/10.1080/03004430.2019.160897

Nation, K., Dawson, N.J., & Hsiao, Y. (2022). Book language and its implications for children's language, literacy, and development. *Current Directions in Psychological Science, 31*(4), 375–380. https://doi.org/10.1177/09637214221103264

Noble, C., Sala, G., Peter, M., Lingwood, J., Rowland, C., Gobet, F., & Pine, J. (2019). The impact of shared book reading on children's language skills: A meta-analysis. *Educational Research Review*, *28*, Article 100290. https://doi.org/10.1016/j.edurev.2019.100290

Pentimonti, J. M., Justice, L. M., Yeomans-Maldonado, G., McGinty, A. S., Slocum, L., & O'Connell, A. (2017). Teachers' use of high-and low-support scaffolding strategies to differentiate language instruction in high-risk/economically

disadvantaged settings. *Journal of Early Intervention*, *39*(2), 125–146. https://doi.org/10.1177/105381511770086

Pons, F., Lawson, J., Harris, P. L., & de Rosnay, M. (2003). Individual differences in children's emotion understanding: Effects of age and language. *Scandinavian Journal of Psychology, 44*, 347–353. https://doi.org/10.1111/1467-9450.00354

Poulou, M. S. (2019). Emotion knowledge and social and emotional competence: A preliminary study of preschool and first grade Greek students. *Hellenic Journal of Psychology, 16*(1), 22–42.

Roberts, M. Y., & Kaiser, A. P. (2015). Early intervention for toddlers with language delays: A randomized controlled trial. *Pediatrics*, *135*(4), 686–693. https://doi.org/10.1542/peds.2014-2134

Spradlin, J. E., & Brady, N. (2008). A behavior analytic interpretation of theory of mind. *Revista Internacional de Psicologia y Terapia Psicologica/International Journal of Psychology and Psychological Therapy*, *8*(3), 335–350.

Streubel, B., Gunzenhauser, C., Grosse, G., & Saalbach, H. (2020). Emotion-specific vocabulary and its contribution to emotion understanding in 4-to-9-year-old children. *Journal of Experimental Child Psychology, 193*, 1–20. https://doi.org/10.1016/j.jecp.2019.104790

Trentacosta, C. J., & Izard, C. E. (2007). Kindergarten children's emotion competence as a predictor of their academic competence in first grade. *Emotion, 7*(1), 77–88. https://doi.org/10.1037/1528-3542.7.1.77

van Kleeck, A., Woude, J.V., & Hammett, L. (2008). Fostering literal and inferential language skills in head start preschoolers with language impairment using scripted book-sharing discussions. *American Journal of Speech-Language Pathology*, *15*(1), 85–95. https://doi.org/10.1044/1058-0360(2006/009)

Westby, C. (2004). A language perspective on executive functioning, metacognition, and self-regulation in reading. In Stone, C. A., Silliman, E. R., Ehren, B. J., and Apel. K. (Eds.), *Handbook of language and literacy: Development and disorders* (pp. 398–427). Guilford.

Whitehurst, G. J., Falco, F. L., Lonigan, C. J., Fischel, J. E., DeBaryshe, B. D., Valdez-Menchaca, M. C., & Caulfeld, M. (1988). Accelerating language development through picture book reading. *Developmental Psychology, 24*(4), 552–559.

Widen, S. C., & Russell, J. A. (2003). A closer look at preschoolers' freely produced labels for facial expressions. *Developmental Psychology, 39*(1), 114–128. https://doi.org/10.1037//0012-1649.39.1.114

Widen, S. C., & Russell, J. A. (2008). Children acquire emotion categories gradually. *Cognitive Development, 23*(2), 291–312. https://doi.org/10.1016/j.cogdev.2008.01.002

Wiig, E. H., Secord, W. A., & Semel, E. (2020). *Clinical Evaluation of Language Fundamentals Preschool-3 (CELF Preschool 3)*. Pearson.

Appendix A: Sample Script

Grumpy Monkey by Suzanne Lang

Before Reading

1. Preview target vocabulary word *grumpy* and refer to the picture card.

- Have children say the word after you.
- Give a child-friendly definition.
- Describe the picture cards and how they link to the word
  - *EID: This girl is grumpy, she looks upset. You can tell by looking at her face and the way her arms are crossed.*
  - *IS: If you feel grumpy, you could find your favorite toy; this boy loves his teddy bear!*
  - *IO: If someone else is feeling grumpy, you could offer to play together; these girls are building with blocks.*

2. Keep the picture card displayed. Ask child to put their thumbs up when they hear or see pictures of the word *grumpy*.

During Reading

Definition	Pages	Question Prompt & Evaluate	Expand	Repeat
Grumpy: Upset		*Emotion Identification*		
	Cover Pg. 4 Pg. 20	What is this character feeling? Correct: That's right, it's called grumpy Incorrect: It's grumpy	Grumpy is when you feel upset Or You are easy to make mad	Say, grumpy is when you feel upset Or Say, you are easy to make mad
		Inference to Self		
	Pg. 2 Pg. 10 Pg. 22	What is something you do when you feel grumpy? Correct: That's right, you might find your favorite toy Incorrect: You might find your favorite toy *Binary Choice: Would you find your favorite toy, or would you be mean to people? Correct: That's right, you would find your favorite toy. Incorrect: You would find your favorite toy.	And play with it Or And count to 10	Say, and play with it Or Say, and count to 10
		Inference to Others		
	Pg. 14 Pg. 19 Pg. 28	What could you do to help someone when they feel grumpy? Correct: That's right, you could try to get them to play Incorrect: You could try to get them to play *Binary Choice: Would you laugh at them or try to get them to play with you? Correct: That's right, you could try to get them to play with you. Incorrect: You could try to get them to play	Or get them to talk to you Or Or maybe just sit with them for a while	Say, or get them to talk to you Or Say, or maybe just sit with them for a while