

ARTICLE

Developmental differences in reported speech and internal state language in preschoolers' personal narratives

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Abstract

The present study explored developmental differences in preschoolers' use of reported speech and internal state language in personal narratives. Three-, four-, and five-year-olds attending a laboratory preschool shared 204 stories about 'a time when you were happy/sad'. Stories were audio-recorded, transcribed, and coded for reported speech (direct, indirect, narrativized) and internal state language (cognitive states, total emotion terms, unique emotion terms). Personal narratives told by five-year-olds included more cognitive states and more narrativized speech than those told by three- and four-year-olds, even when accounting for children's vocabulary skills, and that reported speech (narrativized, direct) were positively correlated with cognitive state talk. These findings highlight distinct shifts in children's use of cognitive state talk and reported speech in personal narratives told at age five. Associations between reported speech and internal state language are both informed by and support Vygotsky's (1978) fundamental claim that psychological processes are socially mediated by language.

Keywords: Early childhood; Personal narratives; Reported speech; Internal state language; Cognitive state talk

Introduction

The ways in which children make sense of past experiences through narrative has been well established (Bird & Reese, 2006; Fivush, Hazzard, McDermott Sales, Sarfati, & Brown, 2002; Leyva & Nolivós, 2015; Davidson & Welliver, 2021). Narrative researchers have described this sense making as taking place on two landscapes: The landscape of action, consisting of the who, what, when and where of the plot, and the landscape of consciousness, which enriches the story by conveying characters' thoughts, feelings, and intentions (Bruner, 1990; Walton & Davidson, 2017). Children's personal narratives begin to take shape in the second and third years of life, as caregivers prompt the child's input and reflection on past experiences (Nelson, 2010). Through scaffolding and co-constructing narratives, caregivers bring attention to processing the inner worlds of the stories' characters (Fivush, Berlin, McDermott Sales, Mennuti-Washburn, & Cassidy,

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2003). In doing so, they socialize children's ability to include the thoughts and feelings associated with events. In addition, parents also bring their young children's attention to the talk that occurs in social interactions in the stories they share and co-create (Ely, Gleason, & McCabe, 1996; Ely, Gleason, Narasimhan, & McCabe, 1995). Caregivers' use of language and references to speech mediates children's understanding of the world from the earliest days of life; in turn, attentiveness to language and appropriation of speech in early childhood facilitates higher order cognitive processes (Vygotsky, 1978). Indeed, as they begin independently to share narratives over the preschool years, children include reports of their own and others' internal states and speech (Ely *et al.*, 1995; Leach, Howe, & DeHart, 2017). The present study aimed to address a gap in past research by examining developmental differences in young children's internal state language and reports of speech in their independently constructed personal narratives about emotional experiences.

Narrative and development of internal state talk

It is particularly through the inevitable trials and tribulations of life that children get practice at integrating internal state language into their own narratives. Consistently, past research has shown the inclusion of more internal state talk when children independently, and with caregivers, reminisce on emotionally negative as compared to positive events (Davidson & Welliver, 2021; Fivush *et al.*, 2002; Fivush, McDermott Sales, & Bohanek, 2008; Gobbo & Raccanello, 2010; Nolivos & Leyva, 2013; Peterson & Biggs, 2001). A great deal of past research demonstrated that we humans tend to hold positive expectations (e.g., my preferred classmate will want to play with me at recess) that are congruent with our positive preferences (e.g., Granberg & Brent, 1983). When we have negative experiences that violate these expectations, we often attend to the motives, thoughts, and feelings of ourselves and others via the sharing of personal narratives in order to make sense of what happened, and to regulate ourselves emotionally (Bruner, 1990; Davidson & Welliver, 2021).

Internal states included in children's narratives have been classified as cognitive state talk, including terms such as want, think, know, believe, or emotion talk, including preferences and positive and negative affective terms such as like, happy, cry, and afraid (e.g., Adams, Kuebli, Boyle, & Fivush, 1995; Haden, Haine, & Fivush, 1997; Recchia & Howe, 2008; Zaman & Fivush, 2011). Broadly, internal state language emerges late in the second year of life, with a rapid spurt occurring during the third year (Bretherton, McNew, & Beeghly-Smith, 1981; Furrow, Moore, Davidge, & Chiasson, 1992.) This developmental trajectory is differentiated based on the type of internal state talk, with past research showing that children are able to reflect on and describe their own and others' emotions before cognitions (Wellman, Cross, & Watson, 2001). The increase in internal state talk during early childhood is driven more by inclusion of emotion terms than by cognitive state references (Bretherton *et al.*, 1981), as children use more emotion talk than cognitive state talk in early childhood conversations (Bretherton & Beeghly, 1982; Hughes, Lecce, & Wilson, 2007). The physical nature of emotions, with tangible, visible representations (e.g., happy = smile; sad = cry) compared to the more abstract, less visible nature of cognitive states, may make emotion talk more concrete and thus more easily articulated. Children's earlier ability to label and discuss emotions may also be attributed to emotion coaching from caregivers in early childhood, particularly as related to emotionally negative events (Gottman, Katz, & Hooven, 1997). Indeed, it is more straightforward for a parent to label emotions, such as pointing to a crying child and

saying to their two-year-old, “Sammy is crying, he’s really sad,” than it is to identify and label what thinking looks like.

While young children use more emotion talk than cognitive state talk in their conversations, past research indicates that children’s understanding and use of cognitive terms develops considerably across early childhood (Moore & Davidge, 1989). Research across various cultural contexts has demonstrated that one category of cognitive state talk, *desires*, emerges in the second year of life, before another category, *THOUGHTS AND BELIEFS*, emerges; this second category only comes to match the frequencies of desire terms uttered by children by the age of 5 (Bartsch & Wellman, 1995; Pascual, Aguado, Sotillo, & Masdeu, 2008). There appears to be a similar developmental sequence in young children’s ability to solve theory of mind tasks: by age 3, children understand that others can have different desires than their own; by age 4, they understand that others can hold different beliefs; and by age 5, they understand that others may hold false beliefs (Wellman & Liu, 2004). In an explicit examination of this connection, one study found that children’s theory of mind skills were correlated with their internal state language vocabulary among a diverse sample of English-, French- and German-speaking 30-month-olds, even when taking into account children’s general expressive vocabulary skills (Chiarella, Kristen, Poulin-Dubois, & Sodian, 2013). In short, children demonstrate a rudimentary attention to minds at the beginning of early childhood, and their skills in understanding and discussing different (and conflicting) mental states develop substantially across this developmental period (Bartsch & Wellman, 1995; Flavell, 1999; Tomasello, 2019; Wellman, 2018; Wimmer & Perner, 1983).

Outside the context of co-constructed parent-child narratives, research on the development of reports of cognitive states in children’s independent storytelling often has focused on differences *BETWEEN* early and middle childhood, broadly emphasizing that attending to, understanding, and reporting a variety of cognitive processes are skills that develop extensively across the early elementary school years (e.g., Leach et al., 2017). Less attention has been given to the nuanced development of cognitive state talk in personal narratives *WITHIN* early childhood despite knowledge of major developments in early childhood theory of mind and children’s ability to verbalize their own and others’ mental states, as previously noted (Bartsch & Wellman, 1995; Flavell, 1999; Tomasello, 2019; Wellman & Liu, 2004). Haden et al. (1997) observed an increase in children’s reports of internal states in personal narratives shared with a researcher between 40 and 70 months of age, but this measure combined cognitive states (*desires*) with emotion terms and speech quotes. Addressing this gap in past research, Nicolopoulou and Richner (2007) observed that children’s representations of characters in their voluntary, self-initiated, spontaneous storytelling shifted from “actors” with physical and external descriptions at age three to “agents” with rudimentary mental states at age four and of “persons” with mental representational capacities by age five. Their findings add a noteworthy dimension to the development of narrative abilities in early childhood, as previous findings reported that younger children narrate simpler character representations, mostly featuring external descriptions of character’s actions without inclusion of their internal states (Berman & Slobin, 1996; Stein, 1988). Importantly, this work contributes to our understanding of how children spontaneously produce cognitive state talk in their independently constructed narratives. In sum, of the existing research on the development of young children’s cognitive state understanding and talk, findings suggest that five-year-olds are more capable of including sophisticated mental state talk in their narrative accounts compared to four-year-olds who are more capable than three-year-olds.

Naturally, developmental differences in mental state talk may be linked to the development of children's expressive language across early childhood. Indeed, various language skills that emerge early in development through communication with others are associated with children's theory of mind (Milligan, Astington, & Dack, 2007). Tomasello (2018) argued that language makes the public expression of mental content possible and, thus, available as a focus of joint attention with others; this invites the possibility of different perspectives toward such content. On the one hand, a more sophisticated understanding and use of language, cultivated through early social interactions, allows children to draw from an increasingly extensive vocabulary to describe and understand mental states; on the other hand, in addition to improving language abilities, young children's increasing interest in interpersonal matters make them more attentive to their own and others' mental states across early childhood (Tomasello, 2019). Talk about peoples' internal states is only possible with a competent vocabulary, but it also is motivated by the highly social nature and curiosity of developing humans. With these considerations, we hypothesized that young children's language skills would be associated with their internal state language in personal narratives, and that we also would observe developmental differences in internal state language when taking verbal ability into account.

Narrative and development of reported speech

The development of children's internal state talk coincides with important developments in children's reports of their own and others' speech. According to Vygotsky (1978), language serves as a critical symbolic tool that mediates humans' connection to the world, to others, and to their own inner thought processes. For young children, social mediation via language occurs as caregivers label and explain the world through dialogue and stories. Children's attentiveness to speech is evident from the early days of infancy (Vouloumanos & Werker, 2007), and their participation in relatively extended conversations with caregivers about a mutually understood topic around 2.5 years of age reflects the social significance of language early in development (Tomasello, 2018). While speech allows for children to communicate with others, it also begins to serve a special regulatory function in early childhood: young children first utilize external speech to guide their actions, and this moves to a stage of whispered speech before eventually transforming to an internal process of private speech to regulate behavior and thoughts (Luria, 1999). Consistent with Vygotsky's notion that thinking is internalized speech, as children begin to attend to speech that occurs in their social interactions with others in early childhood, their personal narratives about past events include reports of what they and others said. This reported speech enriches the landscape of action in a story (Ely *et al.*, 1995). For example, if two preschoolers engage in a conflict over a tricycle on the playground and one child says to the other, "Give that back to me, you meanie!," the other child could choose to describe the utterance in various ways using a direct, indirect or narrativized report. She might run to the teacher and say, *Jack said, "you meanie!"* (direct speech); or she might say, *Jack said that I'm a meanie!* (indirect speech); or she might report that, *Jack said something mean to me!* (narrativized speech). With direct speech, children take the listener to the time of the story event by reporting what someone said by relaying the words close to verbatim; with indirect speech children present what was said from their own perspective in the story telling time (Köder & Maier, 2016). Indirect speech tends to be more grammatically sophisticated than direct speech as it requires the narrator to

change pronoun and verb tenses from their original form. Narrativized speech includes a report or a summary of a speech event that took place (Ely & McCabe, 1993; Walton & Walton-Wetzel, 2013).

Children begin to report direct and indirect speech from about two to three years of age (Ely & McCabe, 1993). Some researchers observed that children included more direct than indirect speech in their personal narratives (Ely et al., 1996; Ely & McCabe, 1993), and others have suggested that direct speech is more difficult for children to understand due to the greater cognitive demands in interpreting pronouns in direct (*Jack said, "I get the tricycle"*) versus indirect speech (*Jack said that he gets the tricycle*), which keeps the listener in the telling time of the story (Köder & Maier, 2016). The inclination to report past speech may develop as children participate in social and communicative interactions, in which they listen to others' stories and perspectives and learn to position their own and others' voices in their own personal stories (Köder & Maier, 2016; Walton & Walton-Wetzel, 2013).

Past research showed that children included more reported speech in their personal stories across middle childhood as they began to develop an awareness of themselves as authors (Walton & Walton-Wetzel, 2013). As with cognitive states, scant research has examined the preceding development of reported speech in personal narratives across early childhood. Much of the existing literature on young children's reported speech in their own stories has focused on the socializing role of parents. Just as parental scaffolding increases attention to feelings and thoughts (Fivush, Haden, & Reese, 2006), it also socializes children to include reported past speech in their personal stories (Ely et al., 1996). For example, mothers' use of reported speech was correlated with two- to five-year-old children's use of reported speech in family dinnertime conversations in one study (Ely et al., 1995). Of the existing literature on early development of reported speech in personal narratives, Zhang, McCabe, Ye, Wang, and Li (2018) found that four-year-old, but not three-year-old, children included some direct or indirect speech in their narratives. Their study also found that the inclusion of direct and indirect speech increased significantly from age three to six. In another study, Peterson and Biggs (2001) found that eight-year-old children were more likely to include reported speech in their personal narratives about happy, surprised, and angry experiences compared to three- and five-year-old children, who rarely, if ever, included this narrative feature (an exception was that five-year-olds telling angry stories did not differ from three- or eight-year-olds in their inclusion of reported speech). Ely et al. (1996) observed that 18% of personal narratives shared by preschool-age children included narrativized speech, and Walton and Walton-Wetzel (2013) found that a full 40% of the stories with reported speech in their corpus of personal narratives written by 4th, 5th and 6th graders included reports of speech without specific content (e.g., *We had an argument*). In short, the research on reported speech in preschoolers' personal narratives is lacking and conclusions about the development of different types of reported speech across this period is limited.

Speech reports provide a window into characters' thoughts and emotions. Consistent with Vygotsky's (1978) view on the mediating role of language and his notion that children's attention to speech is a vehicle by which they come to understand internal states of both self and other, children's reflection on and inclusion of reported speech in their personal stories may also be related to their inclusion of internal state language. For example, five-year-old Diego may not simply be sad that James did not want to play with him, but more specifically that James said, "I don't want to play with you!" Perspective-taking requires attention to one's own and others' words, thoughts, and feelings, and this skill develops dramatically from the end of early childhood into middle childhood (Miller,

2009). It is feasible that as children's personal narrative accounts include more reported speech, they also include more attention to the thoughts and emotions of characters.

The present study

The present study was designed to address a gap in past research by examining developmental differences in young children's reports of internal state language and speech in personal narratives about happy and sad experiences. The use of independently constructed personal narratives is a unique method for measuring children's attention to and articulation of speech and internal states in personally defined, emotionally salient situations across early childhood.¹ As discussed, past research suggests that children include more reports of internal state talk in sad versus happy stories. To further understand the nuances in the development of internal state talk and reported speech across early childhood, we examined the following questions: 1) *Are there developmental differences in internal states and speech reported in personal narratives shared by three-, four-, and five-year-olds?* Based on prior research (Nicolopoulou & Richner, 2007), we hypothesized that cognitive states would increase with age of the storyteller, as would unique emotion terms, as children's ability to describe internal states becomes more sophisticated across the preschool years. We also expected to observe these developmental increases when accounting for children's vocabulary skills. While past research is limited on the development of reported speech among young children, based on Zhang *et al.*'s (2018) study, we hypothesized that reported speech would increase across the preschool years. 2) *Is reported speech associated with internal state talk in preschoolers' narratives?* Consistent with Vygotskian theory, we hypothesized that children's reported speech would be positively associated with their reports of internal states.

Method

Participants

Sixty-seven children ages three-, four-, and five-years-old (36 girls) attending a laboratory child development and student research center (CDC) affiliated with the psychology department at a small liberal arts college in the southeastern United States told 204 personal stories in the present study. Approximately 70% of preschoolers who attend the lab school are children of faculty and staff of the college, and 30% are from the surrounding community. Participants came from ethnically diverse middle and upper-middle class backgrounds. Narrative data used for these analyses were collected from children attending the CDC between 2012 and 2019. The number of stories told by each child in this study varied based on their tenure at the CDC, and response to each prompt. All stories collected ($N = 204$) were used in analyses for the present study. Narratives were collected at multiple time points over an extended period with the majority of participants (52%) sharing happy/sad stories at only one time (i.e., developmental) point, while 37% shared at two time points, and 10% at three time points. See [Table 1](#) for a detailed description of the number of stories told at each age point by all participants in the study.

¹Stories were independently constructed by children following a prompt by the researcher, as described in the method procedure.

Table 1. Percentage and number of narratives told by each participant (N = 67) over time.

Number of Time Points At Which Stories Were Told	Percentage of Participants	Number of Stories Told Across Age Points	Number of Participants	Details
Stories shared at only one time point	52%	One story at one age point	1	One child told only a sad story at age three.
		Two stories at one age point	34	Seven children told two stories (one happy, one sad) at age three. Fifteen children told two stories (one happy, one sad) at age four. Twelve children told two stories (one happy, one sad) at age five.
Stories shared at two time point	37%	Three stories across multiple age points	3	One child told a sad story at ages three and four, and a happy story at age five. One child told a happy story at ages three, four, and five. One child told two stories (one happy, one sad) at age four and a happy story at age five.
		Four stories across multiple age points	24	Eleven children told four stories (two happy, two sad) at ages three and four. Thirteen children told four stories (two happy, two sad) at ages four and five.
Stories shared at three time points	10%	Five stories across multiple age points	0	
		Six stories across multiple age points	5	Five children told six stories (three happy, three sad) at ages three, four, and five.

Note. This table details all data collected for the present study. Data used varies by analysis. Descriptive analyses (i.e., differences in the type of internal state talk and reported speech in early childhood; happy/sad differences) use the child as the unit of analysis (N = 67) via computed average scores for dependent variables across all stories shared for children who shared more than one story. Analyses of developmental differences use the story as the unit of analysis (N = 102) using participants' average scores across happy and sad stories on each dependent variable at ages three, four, and five when applicable. Analyses of associations between reported speech and internal states use the story as the unit of analysis (N = 204).

Procedure

The college's Institutional Review Board (IRB) approved the study and researchers obtained parent consent for children's participation. Data were collected within one month after a participating child's third, fourth, or fifth birthday. After receiving parent

consent for the child's participation, a familiar researcher asked each child in his/her classroom if (s)he wanted to play a picture game and share some stories. If the child agreed, they were invited to a separate research space in the CDC for stories to be shared and audio recorded. Children were invited to share a story about 'a time when you were sad,' and 'a time when you were happy.' The order of the stories was counterbalanced across participants. Stories were collected by the primary researcher and undergraduate research assistants who were trained to elicit stories from participating children using an engaged, enthusiastic listening style which involved minimal scaffolding. Researchers used general prompts such as, 'Tell me more,' repetition of the child's statements (e.g., 'you were on the playground?!'), and only asked questions to clarify the child's verbatim speech. When it appeared the child had finished telling the story, the researcher asked, 'Are you all done with your story?'. After receiving confirmation that the child was done with the story, the researcher thanked the child. On the same date or within one month of collecting a participating child's happy and sad narrative, the same or another trained researcher who was familiar to the child administered the Expressive Vocabulary Test (EVT- 2; Williams, 2007) according to standardized procedures. The test took approximately 15 – 20 minutes to administer for each child. After the child had completed the story-sharing and/or the expressive vocabulary test, the researcher accompanied the child back to the classroom.

Measures

Narrative features

Consistent with previous research, all stories were transcribed verbatim from audio recordings and separated by subject-predicate units for coding (e.g., Fivush *et al.*, 2003). All identifying information was removed from the transcripts and real names were replaced by pseudonyms. A second trained researcher checked transcriptions. Stories were coded for children's reports of total internal states (which included emotional talk – total emotion words and total unique emotions – and cognitive states), and reported speech (which included direct speech, narrativized speech, and indirect speech).

Emotion talk

Transcripts were coded to evaluate children's emotional expression using a coding scheme adapted from previous studies (Adams *et al.*, 1995; Bariola, Gullone, & Hughes, 2011; Fabes, Eisenberg, Hanish, & Spinrad, 2001). Emotion talk refers to the use of positive, negative, or other emotions, including behavioral manifestations of emotions such as hug, cry, and yell. Positive emotions include the subcategories cheerfulness (e.g., happy, fun) or preference (e.g., favorite, liked). Negative emotions include the subcategories anger (e.g., mad, angry), fear (e.g., afraid, scared), non-preference (e.g., didn't like, hate) or sadness (e.g., sad, miss, cry). 'Other' emotions include any emotion terms (e.g., brave, grumpy) that cannot be categorized according to the aforementioned categories. Each emotion term was also attributed to the self, other or a collective we. Total and unique emotion terms (e.g., reference to sadness twice and anger once = 3 total and 2 unique emotions) were then tallied as composite measures. We estimated inter-rater reliability in the form of intra-class correlations (ICC), using SPSS statistical software based on a mean-rating ($k = 2$), absolute-agreement, 2-way mixed-effects model. ICC estimates for emotion talk measures ranged from .93 to 1.0, indicating good reliability on

the 14 categories (total emotions, total unique emotions, total positive emotions, cheerfulness, preference, total negative emotions, anger, fear, non-preference, sadness, other emotions, emotions attributed to self, emotions attributed to others, emotions attributed to a collective we). Analyses were completed using the two composite categories: total emotion terms and unique emotion terms.

Cognitive states

To measure children's reports of internal cognitive states, transcripts were coded with a coding scheme adapted from previous studies (Peterson & Biggs, 2001; Zaman & Fivush, 2011). Cognitive states refers to utterances that provide information on the speaker's or others' internal cognitive processes, such as intentions ('She was trying to push me'), desires ('I want'), and hypotheses ('I think'). Attributions of cognitive states to the self, others, a collective 'we,' or a general 'meta' (general reference to the listener's cognitive states such as 'You'll never believe this') were identified and combined into a total cognitive states composite score. Two researchers achieved good reliability (ICCs: .88 – 1.0). Analyses were completed using the single total cognitive states category.

Reported speech

Transcripts were coded for reported speech using a coding scheme adapted from previous studies (Ely & McCabe, 1993; Walton & Walton-Wetzel, 2013). Stories were coded by two researchers for direct speech (e.g., Pappy said, "where's my Chloe?"), indirect speech (e.g., I told her I didn't like that), and narrativized speech (e.g., I talked to Mom) for self, others, and we (ICCs ranged from .94 to .99; see Table 2). Analyses were completed using the three reported speech categories: total reported direct speech, total reported indirect speech, and total reported narrativized speech.

Table 2. Reported speech measures.

Speech Act	Definition	Example
Direct Speech	Child reports (quotes) words that were uttered by the self or others in a narrative account. Usually marked by a speech verb that either precedes or follows the reported utterance.	I told him most important part, "If you get too sunk in the water, you can do this to go back up."
Indirect Speech	Child transposes the speech act into the narrator's own voice so that the tense and pronouns are consistent with the time of the storytelling, rather than the occasion of the actual speech event. Most commonly marked by the use of a speech verb and a nominal or infinitive clause.	My mommy told me it was a mystery.
Narrativized Speech	Child summarizes a speech event or states that a speech event took place.	I don't like her to say that.

Expressive Vocabulary

The Expressive Vocabulary Test (EVT – 2; Williams, 2007) is an individually administered, norm-referenced assessment of expressive vocabulary and word retrieval for children and adults ages 2.5 through 90 years. The EVT measures expressive vocabulary knowledge of nouns, verbs, and adjectives. The assessment consists of 190 items arranged in order of increasing difficulty. For the general population, the mean raw score is 100 and the *SD* is 15, and standard scores can range from 20 to 160. Expressive vocabulary skills were included as a control variable in developmental differences analyses in the present study; thus, we used participants' *EVT raw scores* in relevant analyses.

Results

Differences in the type of internal state talk and reported speech in early childhood

To examine differences in types of internal state talk and reported speech in young children's personal narratives, we first computed children's average scores across their happy and sad stories shared at multiple ages (three, four, and/or five) for the dependent variables (total emotion talk, cognitive states, and direct, indirect, and narrativized speech). We compared children's average inclusion of emotion talk and cognitive states using a Wilcoxon signed-rank non-parametric test, which is an alternative to a paired samples *t*-test and is appropriate when assumptions of normality and equal variances between groups are violated, as was the case with cognitive states. On average, across the total sample ($N = 67$), children included more emotion talk ($Mdn = 1$) than cognitive state talk ($Mdn = 0$), $z = 4.67$, $p < .001$ in their personal narratives. To examine differences in reports of direct, indirect, and narrativized speech, we conducted a Friedman test, a rank-based non-parametric alternative to the one-way repeated measures ANOVA, which is appropriate when assumptions of normality and equal variances between groups are violated, as was the case with the measures of reported speech. Children did not differ significantly in the types of speech they reported, on average, in their personal narratives ($Mdn = 0$ for direct, indirect and narrativized speech; see Table 3 for mean and median for each narrative measure).

Happy/Sad differences

Next, to compare reports of internal states and reported speech between the two story prompts (happy and sad), we conducted a series of paired samples *t*-tests for children's average total emotion talk and unique emotions in happy stories and sad stories across multiple ages. Consistent with hypotheses, results indicated a statistically significant difference for TOTAL EMOTION TALK, $t(66) = -3.24$, $p < .001$, such that children reported more emotion talk on average in sad stories ($M = 2.18$, $SD = 1.86$) than in happy stories ($M = 1.50$, $SD = 1.56$). Similarly, children reported more UNIQUE EMOTION TERMS in sad stories ($M = 1.67$, $SD = 1.37$) than in happy stories ($M = 1.04$, $SD = .87$), $t(66) = -4.04$, $p < .001$. We examined differences in the other dependent variables (cognitive states, reported speech) between story prompts using a series of Wilcoxon signed-rank non-parametric tests. Comparisons similarly favored sad stories but did not reach statistical significance (see Table 3).

The two stories shared by five-year-old Willow (see Examples 1 and 2) illustrate our finding regarding the difference in internal state talk reported in children's sad versus

Table 3. Means (standard deviations) and medians for narrative measures in happy and sad stories using the child as the unit of analysis (N = 67).

Narrative measures	Happy		Sad		t- or z-score
	Mean (SD)	Median	Mean (SD)	Median	
Total emotion terms	1.50 (1.56)	1	2.18 (1.86)	2	$t(66) = -3.24^{***}$
Unique emotion terms	1.04 (0.87)	1	1.67 (1.37)	1	$t(66) = -4.04^{***}$
Total cognitive states	.75 (1.34)	0	.79 (1.06)	0	$z = .97$
Total reported direct speech	.13 (.43)	0	.14 (.36)	0	$z = .81$
Total reported narrativized speech	.03 (.16)	0	.11 (.34)	0	$z = 1.80^{\dagger}$
Total reported indirect speech	.05 (.19)	0	.11 (.27)	0	$z = 1.90^{\dagger}$

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, $^{\dagger}p < .10$

happy stories. In relaying a sad personal account about wanting to swing on her new swing set, five-year-old Willow described feeling sad in lines 6, 12 and 19 because her dad would not let her swing and because her sister, Lea, was able to (that “really” made Willow sad). In line 16, she elaborated that she felt left out when her sister went on the swing. In contrast, in Willow’s happy story (Example 2), Willow included no emotion terms in describing another experience regarding the same swing set, in which her dad said that she could swing on it after he built it.

Example 1

Willow, five-years-old, Female

Prompt: Tell me a story about a time when you were sad.

1. Researcher (R): Tell me a story about a time when you were sad.
2. Willow (W): Um I got a swing set for Christmas, me and Lea
3. W: I wanted to swing on it,
4. W: but dad said no.
5. W: and he said I could only slide on it.
6. W: and that, and that made me sad.
7. R: and that made you sad?
8. R: You got a swing set-
9. W: Me and Lea,
10. R: You and Lea got a swing set, and you wanted to swing on it but your dad said you could only slide on it?
11. W: Yeah,
12. W: But, it really made me sad because Lea got to swing on it.
13. R: Oh, she got to but you didn’t?
14. W: Yeah.
15. R: That made you sad. Tell me more about that.
16. W: It feel-ded, it feel-ded like I was left-ed out.
17. R: You felt left out?
18. R: Oh, wow, tell me more about that.

19. **W: And I feel-ded sad.**
20. R: And you felt sad?
21. R: Do you want to tell me more about that?
22. **W: No.**
23. R: No, are you all done?
24. R: Ok, thanks for sharing, Willow.

Example 2

Willow, five-years-old, Female

Prompt: Tell me a story about a time when you were happy.

1. R: Can you tell me a story about a time when you were happy.
2. **W: This is the same story but a little bit different.**
3. R: Ok, tell me about it.
4. **W: So, I got that swing set,**
5. **W: and, Dad said I couldn't swing on it,**
6. **W: but Daddy did say after he build-ed it, I w-, I, made it so he turned it around**
7. **W: I could swing on it**
8. R: Wait, daddy said after he built it that what?
9. **W: I can swing on it.**
10. R: That you could swing on it?
11. R: Oh, that's awesome-
12. **W: And I, and I, and I could have my own swing set with Lea.**
13. R: Oh, that's so cool.
14. R: Tell me more about that.
15. **W: No!**
16. R: Are you all done with your happy story? Thanks for sharing!

Developmental differences in internal states and reported speech

We tested our primary question regarding developmental differences in internal states and reported speech, by conducting a series of one-way ANOVAS (for total and unique emotion terms) and Kruskal-Wallis H tests – a rank-based nonparametric alternative to the one-way ANOVA (for cognitive states and reported speech) – to determine if there were statistically significant differences in means (or mean ranks) for the three age groups (three- v. four- v. five-year-olds) across the dependent variables (see Rumpf, Kamp-Becker, Becker, & Kauschke, 2012 for an example of the Kruskal-Wallis test examining differences in narrative competence and internal state language for children with Asperger's and ADHD). For these analyses, we compared participants' average scores across happy and sad stories on each dependent variable at ages three, four, and five when applicable ($N = 102$), with averaged scores on each variable for 23 3-year-old participants, 47 4-year-old participants, and 32 5-year-old participants. The one-way ANOVAs indicated that there were no age differences for total emotion terms, $F(2, 100) = .079, p = .924$, or unique emotion terms, $F(2, 100) = .30, p = .740$. Two statistically significant H values on the Kruskal-Wallis tests were followed up with Dunn's pairwise tests to examine differences between age groups using a

Bonferroni-adjusted alpha level. Results indicated a statistically significant difference among groups for COGNITIVE STATES, $H(2) = 9.15$, $p = .010$, such that five-year-olds (Mean rank = 62.97) included more cognitive states compared to three-year-olds (Mean rank = 40.76), $p = .011$, and (marginally) four-year-olds (Mean rank = 48.95), $p = .087$. Similarly, a statistically significant difference among age groups for NARRATIVIZED SPEECH, $H(2) = 10.05$, $p = .007$, indicated that five-year-olds (Mean rank = 58.89) included more narrativized speech compared to three-year-olds (Mean rank = 48.15), $p = .041$, and four-year-olds (Mean rank = 48.11), $p = .009$. Comparisons among age groups across the other dependent variables (direct and indirect speech) were in similar, expected directions, but did not reach the Bonferroni-adjusted level of statistical significance (see Table 4).

To account for the possibility that developmental differences in cognitive states and narrativized speech were simply due to developmental differences in the storytellers' vocabulary, we created new variables for each dependent variable by dividing the dependent variable score (e.g., number of cognitive states in a particular story) by the storyteller's expressive vocabulary score. In other words, children's expressive vocabulary scores became the denominator for the dependent variable score to control for children's language skills. This also allowed us to account for any within-subjects distinctions in narrative skills due to expressive vocabulary. We re-ran the developmental differences analyses (i.e., the series of Kruskal-Wallis tests) using the newly computed 'by vocabulary' variables for the 97 cases for which we had corresponding EVT data; results were consistent with those of our initial analyses. Specifically, taking into account children's expressive vocabulary scores, a statistically significant difference among groups for COGNITIVE STATES, $H(2) = 6.74$, $p = .034$, indicated that five-year-olds (Mean rank = 57.95) included more cognitive states compared to three-year-olds (Mean rank = 39.98), $p = .034$. Differences between five-year-olds and four-year-olds (Mean rank = 47.27) did not reach statistical significance after the Bonferroni correction, $p = .255$. Similar to the first set of analyses, a statistically significant difference among age groups for narrativized speech, $H(2) = 8.82$, $p = .012$, indicated that five-year-olds (Mean rank = 55.66) included significantly more narrativized speech compared to four-year-olds (Mean rank = 45.59), $p = .016$, and marginally more compared to three-year-olds (Mean rank = 46.00), $p = .079$.

Consider the differences in reported speech and cognitive state talk between the happy stories shared by five-year-old Carson (Example 3) and three-year-old Owen (Example 4), which both describe experiences at amusement parks. These two stories illustrate our finding regarding development differences in reported (narrativized) speech and cognitive state talk. Carson's story about a happy trip to an indoor obstacle park mostly elaborated on his funny misinterpretation of the word "boing" for the word "bowling," and his subsequent change in cognitive state (from what he THOUGHT to what he then KNEW). Carson reported his own direct speech in lines 7 and 19 (*so I said, "Bowling, bowling, bowling."*) as well as his brother's direct speech in line 5 (*he said, "BOING"*). As he made meaning out of the Planet Obstacle adventure, Carson referenced his brother's indirect speech (*Landon tells me it's way more happier*) in line 33, as well as his own narrativized speech in line 14 (*I sounded it out*) and his mom's narrativized speech in line 4 (*Mom called Landon*). In contrast, three-year-old Owen's happy narrative about a trip to Disney World strictly stuck to the actions that occurred (*I meet Mickey Mouse; I ride a Dumbo; I go on a rollercoaster*) with no mention of his own or others' reported speech or cognitive state.

Table 4. Means (standard deviations), medians, mean ranks for narrative measures among three-, four-, and five-year old children.

Narrative measures	Age of story narrator											Test Statistic
	Three-year-olds (n = 23)			Four-year-olds (n = 47)			Five-year-olds (n = 32)			Total (n = 102)		
	Mean (SD)	Median	Mean Rank	Mean (SD)	Median	Mean Rank	Mean (SD)	Median	Mean Rank	Mean (SD)	Median	
Total emotion terms	1.89 (1.75)	1		1.83 (1.59)	1		1.94 (1.64)	1.5		1.88 (1.63)	1.25	$F(2,100) = 0.08$
Unique emotion terms	1.17 (.95)	1		1.35 (.99)	1		1.41 (.93)	1		1.33 (.96)	1	$F(2,100) = .309.15$
Total cognitive states	.35 (.49)	0	40.76 ^a	.76 (1.08)	0	48.95	1.39 (1.63)	.75	62.97 ^b	0.86 (1.25)	.50	$H(2) = 9.15^{**}$
Total reported direct speech	.09 (.19)	0	50.85	.10 (.34)	0	47.99	.27 (.52)	0	57.13	.15 (.39)	0	$H(2) = 4.16$
Total reported narrativized speech	.02 (.10)	0	48.15 ^a	.02 (.10)	0	48.11 ^a	.19 (.38)	0	58.89 ^b	.07 (.24)	0	$H(2) = 10.05^{**}$
Total reported indirect speech	.07 (.23)	0	49.39	.10 (.29)	0	51.39	.17 (.47)	0	53.17	.11 (.34)	0	$H(2) = .66$

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, † $p < .10$

^{a,b}Means with different subscripts differ significantly by age ($p < .05$).

Example 3

Carson, five-years-old, Male

Prompt: Tell me a story about a time when you were happy.

1. R: Tell me a story about a time when you were happy.
2. C: **Well when one time - this part's really funny,**
3. R: Ok.
4. C: **One time, Landon, Mom called Landon**
5. C: **and he said "BOING"**
6. C: **and I thought we were going bowling,**
7. C: **so I said, "Bowling, bowling, bowling,"**
8. C: **until I knew it did not look like bowling,**
9. C: **and I read the sign,**
10. C: **and it said "Boing."**
11. R: Boing?
12. C: **Yeah.**
13. R: Oh, that's pretty funny.
14. C: **That's cause I sounded it out.**
15. R: Oh, nice.
16. C: **Cause I saw those words on it,**
17. C: **cause it did not look like bowling.**
18. C: **then it said Buh-oh-oing: Boing!**
19. C: **and I was like, "Boing!"**
20. C: **and Dad went in,**
21. C: **and see if it's opened,**
22. C: **and it was,**
23. C: **and I was like, once I came in, I was like, really waiting to go in,**
24. C: **And I was like jumping up and down on the trampolines,**
25. C: **and I think the best one's gonna be about, I got two tickets to go to Planet Obstacle!**
26. R: Woah, cool!
27. R: So is this, you're telling me the story about the time when you were happy?
28. C: **Yeah.**
29. R: Tell me more about it.
30. C: **And then, we hadn't went in yet,**
31. R: Mmm.
32. C: **We only went there before.**
33. C: **Landon tells me it's way more happier.**
34. C: **And you know what,**
35. C: **it's really fun cause you know what?**
36. R: What?
37. C: **They even have a ZIPLINE!**
38. R: No way!
39. R: That sounds awesome!
40. R: Wow, do you have any more you wanna tell me about your happy story?
41. C: **No.**

Example 4**Owen, three-years-old, Male****Prompt: Tell me a story about a time when you were happy.**

1. R: Can you tell me a story about a time when you were happy?
2. **O: I was happy because I was I was at Disney World.**
3. R: You were happy cause you were at Disney World (*gasp*). Tell me about it!
4. **O: I meet Minnie and Mickey Mouse.**
5. R: You met Minnie and Mickey? Tell me more.
6. **O: Um, I ride a Dumbo.**
7. R: And Dumbo? Wow! That's so exciting - tell me more.
8. **O: Um, um, uh I uh go on a rollercoaster.**
9. R: And you went on a rollercoaster?
10. **O: Mmhmm**
11. R: Woah! Is there any more from your happy story that you want to tell me?
12. O: Mmhmm.
13. R: Ok.
14. **O: And I saw [-]**
15. R: And you saw who?
16. **O: The trees.**
17. R: You saw the trees? Oh, you see the trees out the window right now? Are you all done with your happy story?
18. **O: Sure!**
19. R: Thank you!

Associations between reported speech and internal states

Last, using the story as the unit of analysis ($N = 204$), we conducted a series of Pearson's r correlations to examine linear associations among the dependent variables (see Table 5). NARRATIVIZED SPEECH was positively correlated with COGNITIVE STATES ($r = .16, p = .023$) and *direct speech* ($r = .49, p < .001$). *Direct speech* also was correlated with *cognitive states* ($r = .16, p = .025$). Finally, *total* and *unique emotion terms* were positively correlated ($r = .85, p < .001$).

Discussion

In the present study, we explored developmental differences in internal state talk and reported speech in preschoolers' prompted, independent narrations of a time when they were happy or sad. Consistent with prior research, preschool children included more emotion talk than cognitive states in their personal narratives. Children included more reports of total emotion terms and unique emotion terms in sad compared to happy stories. Comparisons for the other dependent variables did not reach statistical significance but were in the expected direction. Analysis of developmental differences in internal state talk and reported speech revealed stories told by children at age five included more narrativized speech and cognitive state talk than stories told by children at age three and four; these findings held when controlling for children's expressive vocabulary, with the exception of non-statistically significant differences between 5- and 4-year-olds in cognitive state talk. Narrativized speech, direct speech, and cognitive speech were

Table 5. Correlations among total cognitive states, total emotion terms, unique emotion terms, total reported direct speech, total reported narrativized speech, total reported indirect speech, and expressive vocabulary using the story as the unit of analysis (N = 204).

Narrative measures	1	2	3	4	5	6	7	Mean (SD)	Median
1. Total cognitive states	1							0.86 (1.51)	0
2. Total emotion terms	-0.01	1						1.91 (1.95)	1
3. Unique emotion terms	-0.02	.85***	1					1.34 (1.23)	1
4. Total reported direct speech	0.16*	0.06	0.09	1				.15 (.53)	0
5. Total reported narrativized speech	0.16*	0.13 [†]	0.13 [†]	.49***	1			.07 (.31)	0
6. Total reported indirect speech	0.13 [†]	-0.01	-0.01	0.12	0.1	1		.11 (.40)	0
7. Expressive vocabulary	.28**	.01	.06	.13 [†]	.20**	.19*	1	67.31 (18.17)	68

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, [†] $p < .10$

correlated, indicating that children describing what was said by characters in their stories were also more likely to reference characters' mental states.

Differences in the type of internal state talk and reported speech in early childhood

Across the total sample, children included more emotion talk than cognitive state talk in their personal stories. This finding is in line with prior research indicating children talked more about emotions than cognitive states in their narrative accounts (Bretherton & Beeghly, 1982; Hughes et al., 2007). Children did not demonstrate a preference for the type of speech they reported in their personal narratives. It is worth noting that the frequency of each type of reported speech was quite low across narratives, yet also important to highlight the fact that stories shared by children as young as three-years-old included reports of direct, indirect, and narrativized speech.

Happy/Sad differences

In line with a vast body of narrative research, results indicated that children included more internal state language in stories about sad experiences compared to happy experiences (Davidson & Welliver, 2021; Fivush et al., 2002; Gobbo & Raccanello, 2010; Peterson & Biggs, 2001). Past work has suggested that processing emotionally difficult experiences requires more meaning-making and attention to the landscape of consciousness (Davidson & Welliver, 2021). The findings of this study are consistent with this interpretation, and indicate that young preschool-age children demonstrate the ability to utilize internal state language to make sense of their personal sad experiences.

Developmental differences in internal states

Findings indicated that the inclusion of total emotion terms and unique emotion terms was largely uniform in stories told by children age three to five. These findings did not support our hypothesis, but they may be explained by other past research, which observed that children included emotion talk earlier in their development and referenced emotion talk more frequently than cognitive state talk in early childhood conversations (Bretherton & Beeghly, 1982; Hughes et al., 2007). Likewise, across our total sample, we found that children were significantly more likely to include emotion talk compared to cognitive state talk, and the median emotion talk score was 1 for three-, four- and five-year-olds. Children's earlier ability to articulate emotion terms, which are more visible than cognitive states and are often emphasized via emotion coaching in early childhood, may explain the consistency of emotion talk across age three to five. Given the methodology in this study specifically asked children to tell a story about an emotion, it is reasonable to believe this prompt may have influenced the occurrence of emotion talk across all ages. Ongoing work by Khan and colleagues in which children share stories in story-sharing circles about various common experiences (getting lost, fixing something) may provide more evidence about the role of story prompts, and about the prevalence of emotion talk in stories where emotion talk was not specifically requested.

In contrast to the uniform use of emotion talk in children's personal narratives, stories told by five-year-olds included more references to cognitive states compared to those shared by three- and four-year-olds (marginally). Although distinct in method, these

findings are in line with Nicolopoulou and Richner's (2007) research demonstrating children have a marked ability to articulate cognitive states of the characters in their personal storytelling at age five. Given the developmental differences between five- and three-year-olds in cognitive states in the present study remained when controlling for children's expressive vocabulary, we hypothesize that children's developing sociality and attention to relationships enables them to better articulate their past experiences via personal narratives, many of which are interpersonal in nature (Tomasello, 2019). It is reasonable to believe that as children become increasingly attuned to the perspectives of socially important others across early childhood, they also become more sophisticated storytellers. Indeed, they shift away from the more external descriptions of characters' actions and increasingly include reference to their own and others' mental states (Nicolopoulou & Richner, 2007). Developmentally, this three to five transition coincides with significant developments in perspective taking and theory of mind skills. (Grueneisen, Wyman, & Tomasello, 2015; Miller, 2009; Wimmer & Perner, 1983). This shift may mark the beginnings of the increase in children's use of cognitive states between early and middle childhood, and build on Leach et al.'s (2017) findings which identified increases in children's use of cognitive states in conversation with siblings and peers between age four and seven. Interestingly, Leach and colleagues similarly found no parallel increase in the use of emotion terms across this age range.

Developmental differences in reported speech

Consistent with past research, findings indicated that young children were increasingly attentive to characters' speech in their everyday experiences as they incorporated speech in their recounting of salient emotional events between three and five years of age (Ely & McCabe, 1993). Again, these findings remained when controlling for children's expressive vocabulary. While not discounting the important role of vocabulary skills in children's ability to include reported speech in their narratives, we believe that these findings further highlight the interpersonal nature of young children's personal narratives. As young children become increasingly attuned to the perspectives of others in their social interactions, they may be better able to report (and be more interested in) others' speech in their personal narratives. This finding aligns with past work showing children's increasingly sophisticated representation of characters with mental capacities across the preschool years (Davidson & Welliver, 2021; Nicolopoulou & Richner, 2007). Specifically, stories shared by five-year-olds included significantly more reports of narrativized speech (14% of all five-year-old stories) compared to those shared by three-year-olds (2% of stories) and four-year-olds (1% of stories). Though it did not reach statistical significance, the pattern for direct speech was similar with 17% of stories shared by five-year-olds including reports of direct speech, compared to 8.5% of three-year-old and 6.6% of four-year-old stories). Interestingly, direct and narrativized speech were moderately correlated ($r = .49$), but neither type of speech act was significantly correlated with indirect speech. Stories which reported verbatim quotes from their past interactions were also more likely to include summarized speech in those interactions, but not more likely to include indirect reports of speech. This finding appears to be driven by five-year-old children, as the inclusion of narrativized speech occurred so infrequently in the stories shared by three- and four-year-old children. The reasons for this are not entirely clear. It may be that reporting direct quotes and summarizing speech go naturally together in the account of a past social interaction (e.g., *My mom talked to me. She said,*

“*don’t take that from your sister.*”). Future research should further explore the associations between different types of reported speech in young children’s personal narratives.

Given that some children at ages three, four, and five reported each type of speech act, future research should also examine the predictors and long-term correlates of reported speech in early childhood. Past work found that maternal reminiscing style was linked to children’s own narrative style in early childhood (Fivush *et al.*, 2006) and Ely *et al.* (1996) specifically found that parents’ own attention to speech in conversations with their young children was moderately positively correlated with children’s own reported speech in their independent narratives shared with an experimenter. Considering cultural variations in the extent and the ways in which ‘talk about talk’ is included in personal stories may also be useful for understanding the development of reported speech for a diverse group of children in early childhood. In addition to the established role of caregivers’ reminiscing style on young children’s narrative features, it also would be interesting to examine the role of the preschool classroom narrative context in shaping young children’s storytelling development. Exposure to particular reminiscing styles of teachers and peers may also be related to young children’s own developing narrative abilities. Further research would benefit from a more extensive examination of individual differences in reported speech in personal narratives, including the extent to which young children’s unique storytelling abilities and style develop over time. For example, our results indicated that stories told by five-year-olds included more reported speech compared to those by three- and four-year-olds overall, but plenty of stories authored by five-year-olds lacked reported speech (even if the five-year-old narrators were capable of reporting about the speech in their past experiences). Also, remarkably, even some children as young as age three were compelled to include speech from their remembered happy and sad experiences; these speech reports were meaningful for the young author and engaging for the listener. Consider the excerpt from three-year-old Chloe’s story (Example 5), which included a quote from her grandfather, Pappy, who said, “*Where’s my Chloe?*” (line 8) - this direct speech act shared by a three-year-old child enriched the drama of the hide and seek plot action and conveyed a sense of connection and playful interaction between grandfather and granddaughter.

Example 5

Chloe, three-years-old, Female

Prompt: Tell me a story about a time when you were happy.

1. R: Chloe, tell me a story about a time when you were happy.
2. **Child: When Mammy and Pappy’s at mine house.**
3. R: When Mammy and Pappy were at your house? Tell me about that.
4. **C: Pappy hides hides me**
5. **C: and I got scared**
6. **C: and I runned away**
7. **C: and got I got under my blanket**
8. **C: and Da- Pappy said, “Where is my Chloe?”**
9. R: Oh my goodness you were hiding under your blanket and Pappy said, “Where’s my Chloe?”
10. C: Yeah.
11. R: Tell me more about it.
12. **C: And and Patrick goes under his blanket to not see Mammy.**

13. R: Patrick went under his blanket so he wouldn't see Mammy. Oh my goodness, can you tell me more about that time when you were happy?
14. C: Yeah.
15. **C: Then Mammy chased me**
16. **C: and I run so fast**
17. **C: and I ran on the grass.**
18. **C: Yeah.**
19. R: Then Mammy chased you and you ran so fast on the grass?
20. C: Yeah!
21. R: Woah that sounds so fun. Do you want to tell me more about that time?
22. **C: And and and Mammy and Pappy got me.**

Associations between reported speech and internal states

Correlations between narrativized speech, direct speech and cognitive state talk suggest that children, when describing what was said by characters in their stories, were also more likely to describe what characters thought. This finding aligns with the fundamental claim by Vygotsky (1978) that psychological processes are socially mediated by language. Specifically, attentiveness to speech, encouraged by caregivers, is linked to and facilitates attentiveness to one's own and others' cognitions. Although only marginally significant, reports of indirect speech also were positively correlated with cognitive state talk, further supporting this pattern. Consider the excerpt below from the happy story shared by five-year-old Carson, in which he incorporated direct speech to provide detail as he reported the evolution of his cognitive states from what he THOUGHT to what he KNEW about where he and his family were going (see the Results section for a full transcription of the story).

42. **C: One time, Landon, Mom called Landon**
43. **C: and he said "BOING"**
44. **C: and I thought we were going bowling,**
45. **C: so I said, "Bowling, bowling, bowling,"**
46. **C: until I knew it did not look like bowling,**
47. **C: and I read the sign,**
48. **C: and it said "Boing."**

As cognitive skills develop in sophistication across early childhood, it appears when children tell stories about past experiences, they make sense of them by not only considering the internal worlds of characters but also what is said in social interactions. Five-year-old Adrian's story about a time when he was sad supports this claim. By narrating that *Megan and Veronica said, 'I am not your friend anymore,'* he included reports of direct speech from socially important others. Again, Adrian's inclusion of direct speech in this personal narrative illuminates the telling of a character's change in cognitive state (he *found out* that their *team is evil*).

6. **A: So, I was outside playing on the playground when it was almost time for lunchtime**
7. JS: You were outside playing on the playground when it was almost time for lunchtime...

8. **A: And Me-, and Megan said...and Megan and Veronica said, "I am not your friend anymore."**
9. JS: Aw, and Megan and Veronica said, "I am not your friend anymore."
10. **A: Yeah.**
11. JS: And that made you sad?
12. **A: And then I went on, and then I went on, and then I went on, um, Tonya's team because I found out Megan and Veronica's team is evil.**

Collectively, these findings and example narratives illustrate that the development of reported speech and cognitive state talk in personal narratives across early childhood are not necessarily discrete processes, a claim supported by Vygotsky's writings a century ago, but rather may co-occur or evolve in tandem through their relation to other developmental processes.

Development of mental state reasoning

Developmental gains in internal state talk and reported speech in children's personal narratives are likely related to gains in other forms of mental state reasoning in early childhood, such as the development of theory of mind. A vast body of research indicates that children's ability to understand that beliefs can be false emerges around four years of age (Wimmer & Perner, 1983). Depending on the method of assessment, children as young as five or six have demonstrated success on second order false belief tasks, which involve more complex forms of mental state reasoning than first order reasoning (Grueneisen *et al.*, 2015; Miller, 2009). Second order false belief reflects the realization that it is possible to hold a false belief about someone else's belief (e.g., "I know he doesn't know that I know..."; Perner & Wimmer, 1985). Six-year-olds, for example, are capable of using second order reasoning to coordinate with peers (Grueneisen *et al.*, 2015). It is possible the personally experienced nature of the stories in this study, or in naturalistic studies such as Nicolopoulou and Richner's (2007), allows children to better demonstrate their cognitive capacities as compared to artificial and hypothetical laboratory scenarios. Future research on the development of reported speech and internal state talk in young children's narratives would benefit from inclusion of theory of mind tasks. Such work may want to include the referent of cognitive states (own vs. shared vs. other) in analyses, as Hughes *et al.* (2007) found correlations between talk about others/shared cognitive states and theory of mind.

Limitations

The data in the present study were collected over multiple years, with not all participants able to share a story at ages three, four, and five. Roughly half of participants (47%) told a story at two or three different ages. The number of stories told by each child in this study varies based on their tenure at the CDC, and response to each prompt. Additionally, during the seven-year period of data collection, the size and subsequent enrollment of the setting from which stories were collected shifted, resulting in variations in the number of stories told by each participant. All stories collected were used in analyses for the present study. A more straightforward approach recommended for future work would be a three-year longitudinal design in which every participant

told a story at each age point, and only participants who told a story at all three age points would be included in analyses.

Conclusions and future directions

In conclusion, as young children experiment with the narrative form in early childhood, they begin to include reports of their own and others' feelings, cognitive processes, and speech in order to make meaning of salient emotional experiences. The present study adds important nuance to the understanding of the development of these narrative features across early childhood. Our findings indicate a shift in children's use of cognitive state talk and narrativized speech in their personal storytelling at age five, demonstrating children's burgeoning ability to articulate a mentalistic conception of characters in their narratives near the end of the preschool years, even when accounting for their rapidly developing vocabulary skills. Recognizing the remarkable storytelling abilities of young children, we hope future research will continue to explore the development of children's emotional, cognitive, and linguistic capacities through personal narratives in early childhood. Such work will allow researchers to better understand these young storytellers, while also facilitating children's own understanding of themselves and the world in a way that is personally meaningful to them.

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