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Preschoolers' learning of information from fantastical narrative versus expository books

Emre Aydin [a], Hande Ilgaz [b,*], Jedediah W.P. Allen [b]

[a] Department of Psychology, Simon Fraser University, Burnaby, British Columbia V5A 1S6, Canada
[b] Department of Psychology, Bilkent University, 06800 Ankara, Turkey

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ABSTRACT

This study investigated preschool children's learning from expository and fantastical narrative books and whether the children would show a tendency for learning from expository books in cases of conflicting information. Over three testing sessions, 71 3- and 5-year-olds were individually read one expository book and one fantastical narrative book. These books contained four types of information units: *narrative-only*, *expository-only*, *conflicting*, and *consistent*. Children were asked questions that tapped these information units. Results showed a main effect of age, with 5-year-olds learning more information from both books than 3-year-olds. When the information in the narrative and expository books conflicted, 5-year-olds showed a tendency to report information from the expository book, but 3-year-olds were at chance level for prioritizing information learned from either book.

Introduction

The benefits of early book reading are well documented, and parents are advised to start reading to their children at a young age (e.g., Cates et al., 2017). A variety of positive outcomes are reported for children whose parents regularly read to them, including better language comprehension (Beals, De Temple, & Dickinson, 1994), better vocabulary (Marulis & Neuman, 2010), and literacy skills (Justice & Kaderavek, 2003). Based on the effectiveness of book reading for children's language and conceptual

* Corresponding author.
E-mail address: hande.ilgaz@bilkent.edu.tr (H. Ilgaz).

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development, it has been adopted as a daily activity in most preschool curricula (e.g., Duke, Bennett-Armistead, & Roberts, 2003). A less studied outcome of book reading is children's acquisition of factual information. This is especially relevant for young children who are faced with the task of acquiring information that cannot be learned through direct observation or firsthand experience such as exotic animals and distant places (Nadel, 2002; Shtulman & Carey, 2007). Books have a critical role in enabling children to access this type of information.

Parents and teachers of young children tend to be more familiar with traditional *narrative* books where the ultimate aim is not to communicate factual information but rather to relay a coherent story that provides far-reaching lessons on psychological and social reality (Pentimonti, Zucker, Justice, & Kaderavek, 2010; Robertson & Reese, 2017; Saracho & Spodek, 2010; Yopp & Yopp, 2006). However, there has been a surge of interest in *expository* books for young children that aim to relay factual information in age-appropriate ways (Bergman Deitcher, Johnson, & Aram, 2019; Culatta, Hall-Kenyon, & Black, 2010; Cummins & Stallmeyer-Gerard, 2011; Massey, 2014; Saracho, 2017). The current study investigated whether there are developmental differences in children's learning of factual information from books belonging to expository and fantastical narrative genres. A second aim was to investigate whether there are developmental differences in children's tendency to report information from one of the genres when information from the two sources conflicts.

In general, narrative books are structured around one or more interrelated problems that may be externally induced or internally motivated. An important feature of narratives is that they allow the reader to contemplate the psychological reality of the characters and are only meaningful and coherent when those psychological realities are plausibly related to the characters' sequence of actions (Bruner, 1991). Although books might often be used as reliable sources of knowledge about the world, not all books harbor this aim (Saracho, 2017). The primary purpose of narrative texts is not to relay factual information but rather to relay a coherent story. Narratives may provide inaccurate but otherwise plausible information. Realistic fiction is rife with such distortions of reality where false information may be presented within a possible and plausible frame of reality (e.g., historical fiction). Another subgenre, fantastical fiction, includes information that violates physical, social, and psychological reality (e.g., anthropomorphized animals, wizardry schools).

In contrast, the main aim of expository books is to provide accurate generalizable information about a specific topic such as plants or animals (Duke, 2003; Maduram, 2000). Although there are exceptions (e.g., biographical works, narrative nonfiction), prototypical expository books are not structured by a plot; instead, information is presented to readers in the form of individually structured units. These books generally do not involve specific characters but rather refer to kinds (e.g., penguins, planets) in order to prompt the generalizability of the information (Martin, 1985). For example, the statement that "Penguins in nature only live at the South Pole" can be generalized to all penguins outside of captivity. Finally, to refer to kinds, generic language is used in expository books together with the timeless tense as an indicator of such generalizability (Gelman, Ware, Manczak, & Graham, 2013).

The current study aims to investigate whether there are developmental differences in children's learning from a particular subgenre of narratives (i.e., fantastical narratives) and the expository genre. In this regard, our first research question is whether 3- and 5-year-olds learn different amounts of information based on the book genre. Research that investigates children's learning by genre is scarce, perhaps owing to the widely held belief that narratives provide a foundational discourse structure for comprehending and remembering information (Gottschall, 2012). This feature of narratives may be especially beneficial to young children to learn and remember information given their limited cognitive capabilities (Egan, 1988). Educators and parents have been encouraged to use narratives to promote children's literacy development (Egan, 1988; Wells, 1986). To this end, research has predominantly investigated the effect of narratives on literacy abilities such as learning new words (e.g., Eller, Pappas, & Brown, 1988; Reese & Cox, 1999; Trivette, Simkus, Dunst, & Hamby, 2012) and narrative comprehension (e.g., Lynch et al., 2008; Paris & Paris, 2003). Research on children's learning from televised or digital media with narrative content has shown that children can learn generalizable facts from such narrative media (for a review, see Hopkins & Weisberg, 2016). Studies with grade school children show that narratives can be effectively used to teach complex scientific information even in areas where prior biased thinking exist such as evolutionary mechanisms (e.g., Cervetti, Bravo, Hiebert, Pearson, & Jaynes, 2009; Kelemen, Emmons, Seston Schillaci, & Ganea, 2014; Legare,

Lane, & Evans, 2013). However, research on the effectiveness of fictional books, particularly fantastical narrative texts in preschool children's learning of generalizable facts, is more limited.

Research on preschoolers' learning from expository books has a more recent and limited history. This is paralleled by the fact that preschool children are exposed to this genre less frequently as compared with the narrative genre (e.g., Saracho & Spodek, 2010). For instance, in preschool classrooms, expository book read-alouds get scant time compared with narrative book read-alouds (Dickinson, De Temple, Hirschler, & Smith, 1992; Pentimonti, Zucker, & Justice, 2011; Yopp & Yopp, 2006). However, early work by Pappas (1993) documented that preschool children were able to learn new words from both narrative and expository books. Furthermore, children also naturally adhered to genre characteristics when asked to recall information from either genre. For example, they used timeless tense to relay generalizable information. This implies that preschool children may be sensitive to genre characteristics before they become literate.

Expository books may offer unique advantages in adult–child book-sharing contexts. Previous research has shown that expository book readings, as compared with narrative book readings, are more interactive (Price, Kleeck, & Huberty, 2009), facilitate more talk (Anderson, Anderson, Lynch, & Shapiro, 2004), and support more complex and diverse vocabulary use (Pellegrini, Perlmutter, Galda, & Brody, 1990; Price et al., 2009). Furthermore, in expository book readings, children were observed to ask more cognitively demanding questions (Torr & Clugston, 1999). Research with grade school children shows that they may learn more from expository books that aim to teach about the process of evolution as compared with narrative texts (Browning & Hohenstein, 2015).

In sum, the effects of narrative books on children's growing language and literacy abilities, and on related abilities such as social understanding, are well documented in the literature (e.g., Mol & Bus, 2011; Symons, 2004). However, some scholars have argued that expository books deserve a more prominent role in young children's print exposure (Debbie & Harris, 1997; Saracho, 2017; Teale, 2003; Yopp & Yopp, 2012). A consistent body of research showing rich interactions in the context of expository books is evidence for this call. Along these lines, the current study sought to fill a related gap in the literature with an investigation of preschool children's learning of factual information from these two genres.

Our second research question concerned whether there are developmental differences for children's reliance on one genre over another when learning new information. This question speaks to the issue of the factual reliability of information and is inherently different for the two genres. Whereas expository books include only factually correct information, narrative texts have the license to incorporate unrealistic or fantasy elements. What makes learning from fictional narratives tricky for both adults and children is their dual nature, where fictional and factual information coexist (Hopkins & Weisberg, 2016). This challenge, dubbed as "the reader's dilemma," requires the reader (or the listener, as is the case with preliterate children) to evaluate the accuracy of the information presented (Gerrig & Prentice, 1991). For instance, Aesop's famous fable, "The Ant and the Grasshopper," relays an important moral code that hard work and planning for the future are beneficial (Jacobs, 1894). This message is communicated through the interaction of two anthropomorphized characters that seem to engage in human-like activities. Hidden in this short story is an easy-to-miss inaccuracy regarding the lifespan of grasshoppers (i.e., grasshoppers do not live through the cold winter months). Even adults may assume that grasshoppers' lives span a combination of cold and warm months based on the implicit content embedded in this fantastical narrative. Literature that examines adults' learning of information from media consistently suggests that adults may be susceptible to learning false information from realistic fiction even when they have been advised that these sources may include fictional content (Butler, Zaromb, Lyle, & Roediger, 2009; Marsh & Fazio, 2006; Marsh, Meade, & Roediger, 2003).

If adults who are familiar with the dual nature of fictional and fantastical narratives cannot escape learning fictional information when exposed to such media, children may also be susceptible to learning false information from fictional or fantastical narratives. For young children, the challenge may be twofold: identifying a source as belonging to either the fictional narrative (i.e., realistic or fantastical) or the expository genre and appreciating that expository sources will yield more reliable information. The current study focused indirectly on the former challenge and directly on the latter challenge. To that end, in the current study, children were read a fantastical narrative about an anthropomorphized

main character, a caterpillar named Mugi, and an expository text that used generic language while conveying facts about caterpillars. Children were asked questions about conflicting information presented across the books.

Although in the current study we did not explicitly ask children which of the texts they found to be a more reliable source of information, we assumed that children's answers to the conflicting questions would be an indication of their preference. Previous research has shown that the existence of fantastical elements in a narrative text may provide clues to children about the (un)reliability of the information presented (e.g., Woolley & Cox, 2007). Corriveau, Kim, Schwalen, and Harris (2009) asked children to categorize novel characters as historical or fantastical. Each character type (e.g., soldier, farmer) was presented to children in both a fantastical context and a historical narrative context. Whereas 5- to 7-year-olds were able to categorize characters correctly based on whether the narrative was realistic or fantastical, 3- and 4-year-olds were at chance level for categorizing novel characters. These results indicate that children show developmental gains in appreciating source context characteristics, which may contribute to older children's selectivity in learning from different genres (i.e., realistic narrative vs. fantastical narrative).

Research that directly compares preschool children's learning of facts from texts belonging to two different genres (in this case, expository vs. fantastical narrative) is lacking (for an exception with grade schoolers, see Cervetti et al., 2009). Two lines of research provide insight into the second challenge, namely children's learning from texts including varying degrees of fantastical elements. However, each line has looked at the effects of fantasy on learning within a single genre category, either narrative or expository. One line of research has investigated preschoolers' learning of factual information within the narrative genre with the inclusion of varying degrees of fantasy elements (e.g., anthropomorphism with or without events that violate physical laws).

Preschoolers' inclination toward realism seems to be part of a tendency to be skeptical of the reality or possibility status of what lies outside their everyday experience (Shtulman & Carey, 2007; Woolley & Ghossainy, 2013). This inclination is also evident in the results of studies that investigate children's learning and transfer of information. For instance, Walker, Gopnik, and Ganea (2015) showed that preschoolers who heard the fantastical version of a narrative were less likely to learn the causal relation presented and transfer this relation to the real world. In their study, 5-year-olds were more likely not to generalize the causal relation from the fantastical story as compared with 3-year-olds. In research that focused on children's learning of problem solutions, Richert and colleagues (Richert, Shawber, Hoffman, & Taylor, 2009; Richert & Smith, 2011) provided young children with novel solutions to problems in realistic narratives versus fantastical narratives. They examined whether children would transfer these solutions to solve real-world problems. Richert et al. (2009) found that 6-year-olds were able to transfer solutions from both realistic and fantastical narratives, whereas among the younger children only those who encountered the solution in the context of a realistic story were able to transfer the solution. Not only was this finding replicated in Richert and Smith (2011), but it was also found that children with a high fantasy orientation were even less likely to transfer the solution from the fantastical story. This finding implies that experience with the fantasy genre may alert children to the dual nature of fantastical narratives.

The second line of research investigates children's learning from expository texts with varying degrees of fantastical elements. Ganea, Ma, and DeLoache (2011) showed that 4-year-olds can learn biological facts (i.e., camouflage) from books that contain either intentional/anthropomorphized or factual language. However, their performance was poor when asked to apply their knowledge to real-life biological entities. The features of language that serve to express fantasy (i.e., anthropomorphism) did not seem to make a difference independently. However, Ganea, Canfield, Simons-Ghafari, and Chou (2014) showed that when features of language (i.e., anthropomorphism vs. factual language) were coupled with varying degrees of realism in the picture stimuli (i.e., anthropomorphized pictures), children showed differential learning. Specifically, the poorest learning gains were observed in fully anthropomorphic conditions, which contained both intentional language and pictorial depictions of anthropomorphized animals.

Studies that compare children's learning or generalization of information from narratives with differing levels of fantasy elements cannot answer the question of whether children have a tendency to prioritize information learned from narrative texts versus expository texts. The extant research shows

that young children have less difficulty in learning generalizable information from texts with fewer or no fantastical elements. This is true for both expository texts (Ganea et al., 2011, 2014) and narrative texts (Richert et al., 2009; Richert & Smith, 2011). However, younger preschoolers may find it challenging to use contextual cues (fictional vs. historical) to evaluate the factuality of information (Corriveau et al., 2009).

The current study aimed to contribute to efforts to investigate young children's learning from age-appropriate texts by focusing on two relevant and commercially available genres: fantastical narratives and expository texts. A better understanding of children's learning of information presented in different genres would assist in efforts to enrich young children's educational environments. A more interesting question concerns developmental differences in the possible prioritization of information learned in one genre over information learned in the other genre when information conflicts between the two.

The current study

The current study had two major aims: The first aim was to investigate 3- and 5-year-old children's learning of information from expository and fictional narrative books. The second aim was to investigate whether children would show developmental differences in their prioritization of information learned from an expository book compared with a fictional narrative book when the information conflicts.

To investigate these issues, we presented children with two books created for this study, each of which belonged to a different genre (i.e., expository or fictional narrative) but covered the same topic (i.e., caterpillars). The books were equalized in length and complexity of language. Both books were illustrated by the same illustrator with instructions to aim for similarity in color palette, detailedness, and attractiveness. The narrative book contained an episodic plot (i.e., the protagonist had a goal, strived to achieve it, and succeeded) about an anthropomorphized character and included both factually true and false information. The expository book gave only factually correct information about caterpillars with generic language and no narrative plot or anthropomorphism. The books contained four types of information units: *narrative-only, expository-only, conflicting,* and *consistent.* In the narrative-only and expository-only categories, children were presented with factual information that appeared in only one of the two books. The conflicting category consisted of information units that differed across the two books. In this study, the expository book presented correct information, whereas the narrative book presented incorrect information. Lastly, the consistent information units were presented in both books with no conflict.

Children's answers to the information units were analyzed to test our two main research questions. First, are there age-related differences in children's learning of information from the fantastical narrative versus expository genres? Second, do 3- and 5-year-olds differ in their prioritization of information learned from the expository book when the information included in the expository book conflicts with the false information presented in the fantastical narrative book? Although not central to the aim of the study, the data also allowed us to ask whether children learn more efficiently when both books converge on the same information as compared with when presenting conflicting information units.

Method

Participants

A total of 71 Turkish-speaking 3- and 5-year-old children participated in the study: 32 3-year-olds (mean age = 41.5 months; 14 female) and 39 5-year-olds (mean age = 66.5 months; 19 female). Children were recruited from private preschool and prekindergarten programs in Ankara, Turkey. Ankara, with a population more than 5.4 million, is the second largest city in the country and is also the capital of Turkey. Children predominantly came from middle-class backgrounds, as evidenced by high education levels of mothers (39.4% postgraduate education, 50.7% university degree, 8.5% high school degree, 1% missing). In addition, a comparable group of 27 5-year-old children (mean age = 66.8 mo

nths; 13 female) was recruited to constitute the control group. Upon receiving institutional ethics board approval and Ministry of Education approval, we targeted schools that serve middle-class populations. The school administrators were sent a package including the invitation to participate in the study, consent forms, and demographic questionnaires. The consenting parents signed and sent the forms back to the school administration. Only children who also verbally assented to the study were tested. Parental consent for an additional 5 children was obtained; however, 4 of these children were absent for one of the three testing sessions and 1 child did not wish to participate. Hence, these 5 children were excluded.

Materials

Picture books

Two picture books, one narrative and one expository, were created by the researchers, allowing for comparability of content and structure. The books were matched on topic, length, color scheme, and number and style of illustrations. Each book contained five pages of text and five colored illustrations. Although no glossary exists in Turkish that separates vocabulary into tiers of difficulty by children's age group, we strove to match the two books according to language complexity. For example, both books included nontechnical child-friendly vocabulary, short sentences, and simple grammar.

Fantastical narrative book (Mugi's Dream). This book was created in accordance with the general features of the narrative genre. The story is about a caterpillar named Mugi who dreams of exploring distant lands and tries to build wings to fulfill this dream. The story does not identify Mugi's gender, and the fact that the Turkish language does not include gendered pronouns made this natural. In accordance with the linguistic conventions of Turkish storytelling, the story was told in the evidential past tense. In addition, the story adhered to the prototypical narrative structure and included orientation, complication, crisis, and resolution components. The book was designed to represent fictional narratives and included elements of fiction that would be familiar to young children. The protagonist was an anthropomorphized caterpillar who had psychological states, had social relations, and engaged in everyday activities.

Expository book (Caterpillars). This book was created in accordance with the general features of the expository genre. The book provided generalizable information about caterpillars as a species (e.g., physical features, metamorphosis). In line with the defining characteristics of this genre, the expository book did not include a storyline, dialogue, or protagonist. Instead, the book presented different features of caterpillars on each page. Generic language and timeless tense were used throughout the book as a general feature of the genre.

Information units

The numbers of information units were matched across the two books. Each book contained the following: four units of correct information that was only presented in that book (i.e., genre specific: narrative-only or expository-only), four units of information that was included in both books (consistent), and four units of information that conflicted across the two books (conflicting). The conflicting information was always correct in the expository genre and false in the fantastical narrative genre (for information units in each category, see Table 1).

Measures

Questions that assess information acquisition

A total of four questions were created for each category (i.e., conflicting, consistent, narrative-only, and expository-only). Each information unit was probed with one question. Within each category, there was one closed-ended question (e.g., Do caterpillars move slow or fast?), one open-ended question (e.g., What feature of caterpillars protects them from the cold?), and two multiple-choice questions with one correct answer and three foils (e.g., Where do caterpillars live?). To make it easier for children to keep track of options, pictures were used to present response options in

Table 1
Units of information and questions.

Question category	Question type	Fact	Question
Narrative-only	CE	Moving slow	(*) Do you think caterpillars move slowly or fast?
	MC	Cooperation with ants	(*) Who do caterpillars ask for help when they run into trouble?
	MC	Smelling antennas	What parts of their body do caterpillars use to smell?
	OE	Sticky feet	What feature of caterpillars helps them climb trees?
Expository-only	CE	Sleeping under leaves	Do caterpillars sleep on or under the leaves?
	MC	Poisonous	[Show a black and white drawing of a caterpillar] This caterpillar is poisonous. Which color should we paint it?
	MC	Camouflage	[Show a black and white drawing of a caterpillar] This caterpillar needs to hide in this tree. What color should we paint it so that it can hide?
	OE	Hairy body	What feature of caterpillars protects them from cold weather?
Consistent	CE	Twelve eyes	Do you think caterpillars have two eyes like us, or do they have more eyes?
	MC	Living in trees	Where do caterpillars live?
	MC	Twelve feet	(*) Which of these do you think might be the footprints of a caterpillar?
	OE	Eating a lot	(*) How do caterpillars grow so fast?
Conflicting	CE	Predator/ Friend	How do birds get along with caterpillars?
	MC	Cocoon/Tent	What do the caterpillars' nests look like?
	MC	Leaf/Candy	(*) If you had a caterpillar, what would you give it to eat?
	OE	Create/ Transform	Look, this caterpillar has no wings. How do you think it could get wings?

Note. CE, closed-ended question; MC, multiple-choice question; OE, open-ended question. An asterisk (*) marks questions that were eliminated based on analysis of control children's answers.

multiple-choice questions (e.g., picture of a tree, picture of a lake, picture of a cave, picture of tunnels in the ground). Approximately 30% of the open-ended questions were coded by two independent coders. The reviewers' agreement for all questions ranged from 92% to 100%. Children obtained 1 point for each correct answer. The range of scores was from 0 to 4 for all information categories (see Table 1 for questions and answers in each category).

Questions that assess narrative comprehension

This task was created to measure children's narrative comprehension, which could affect their learning of information from picture books. Children's comprehension was assessed through seven open-ended questions. These questions targeted the structural components of the narrative (i.e., setting, motivation, attempt, consequence, and the moral of the story).

TIFALDI (Turkish expressive and receptive vocabulary test)

TIFALDI is a standardized vocabulary test for Turkish-speaking children from 2 to 12 years of age (Berument & Güven, 2010). The task is similar in structure and application to the Peabody Picture Vocabulary Test (PPVT) and the Expressive Vocabulary Test (EVT). This two-part test consists of a *receptive* vocabulary task, where children point to the target picture in an array of four pictures, and an *expressive* vocabulary task, where children name single pictures. This task was used to provide a general measure of language competence.

Dimensional change card sort task

To control for children's executive functioning abilities that could plausibly affect their engagement and ability to juggle different pieces of information, we used Zelazo's (2006) Dimensional Change Card Sort (DCCS) task. The task required children to sort cards first according to one simple rule and then according to a different simple rule. Those children who successfully used the second rule were

administered the border phase in which they were asked to flexibly switch back and forth between the two rules according to a third rule.

Theory of mind battery

Wellman and Liu's (2004) theory of mind battery was used as a filler to equalize cognitive load of the first and second days of testing. There was no specific hypothesis for theory of mind abilities.

Parent questionnaires

Two questionnaires were sent home for parents to complete. The first questionnaire asked about demographic information of interest. The second questionnaire asked about the home literacy environment (parents' book-reading practices) and children's experience with the different genres under scrutiny such as the age at which parents start reading narrative and expository books or whether parents prefer one genre over the other when buying books for their children

Procedure

The testing procedure took place in children's preschools, where each child was tested individually in a quiet room. The testing process was divided into 3 days in order not to overtax children's attention. The fantastical narrative and expository books were read on the first 2 days of testing and were counterbalanced within age groups. The first 2 days of testing were 2 days apart. A fixed order was employed for the cognitive assessments, and these were distributed across the first 2 days of testing.

Theory of mind and receptive vocabulary were administered on the first day, and executive functions and expressive language were administered on the second day. The theory of mind measure was used on the first day to serve as a warm-up and filler task. Our previous experience with this task indicated that children easily engaged with the task and seemed to enjoy it. Hence, this task was deemed to be an appropriate opener to the testing sessions. The book reading and the following genre-specific questions were always the last activity of the first 2 days of testing. Two trained researchers, an experimenter, and a coder carried out all cognitive tests. Following the cognitive tests for that session, the experimenter read the text according to the preestablished reading protocol (see online supplementary material). Upon completion of the book reading, the experimenter left the room to bring stickers for the child. At this point, the coder approached the child, stating disappointment in not having been able to listen to the book reading, and asked whether the child would help with some questions about the book. All children agreed to help and answered the book-specific questions (narrative-only and expository-only). We opted to have the questions asked by a novice adult instead of the experimenter who read the book to the child so that children would be more likely to show their true understanding without assumptions about the questioner's level of knowledge.

The third day of testing was 1 week from the second day of testing, where children were administered the conflicting and consistent information questions by a third experimenter who the children had not met before. This new experimenter asked the children whether they knew about caterpillars. All children enthusiastically answered in the affirmative. The experimenter proceeded to express a need for help from the children for a homework assignment about caterpillars. All children willingly volunteered to help and answered all the questions.

A control group was included in this study to test for children's baseline knowledge of the content matter. We opted not to pretest the experimental children because we did not wish to cue the children to the specific information units to be learned before the book reading. In addition, given that this was a within-participants design (i.e., children were read both books), we did not wish to further fatigue children with an extra day of testing. The control children were individually tested in a quiet room in their school. This group of children was not read either of the books. The children first engaged in a warm-up activity with the experimenter. The same procedure used for the experimental group on the third day of testing was administered for the control group. After the warm-up, the experimenter told the children that she had homework about caterpillars and wondered whether the children could help her. All questions asked to the experimental group on the third day of testing were asked in counterbalanced order to the control children while a coder recorded answers.

Book-reading protocols

Two reading protocols were created to control individual differences in children's engagement with the books and to ensure that children paid due attention to the information units. We matched these book-reading protocols to also safeguard against differences in the effectiveness of book-reading discourse between the two genres. In creating the protocols, we used dialogic reading techniques because these have been found to increase children's engagement and learning from texts (e.g., Hargrave & Sénéchal, 2000; Whitehurst et al., 1994). These protocols included prompts that enabled children to process each unit of information deeply through active participation (e.g., pointing, counting, extending the information to the children's lives). An example of an extension prompt asked children to reflect on what they like to eat while emphasizing that caterpillars liked to eat leaves. These protocols also facilitated natural conversational book-reading interactions for all children. Approximately 20% of the children were randomly selected for fidelity checks from videotapes. In each protocol, there were 14 instructions that the experimenter needed to read. The fidelity analysis revealed 98.2% agreement of the actual book reading with the book-reading protocol (see supplementary material for the book-reading protocols).

Results

In what follows, we first present the correlations found between variables, including children's cognitive abilities, age, and number of information units learned. Second, we explored age differences between the number of information units children learned from narrative and expository books. Third, we investigated age differences in children's tendency to prioritize information learned from one genre over the other when answering questions. Finally, we investigated age differences in children's learning of conflicting versus consistent information.

We should note that we had no specific hypothesis about the effects of gender and theory of mind on children's learning from narrative and expository books. In line with our expectations, neither gender nor theory of mind emerged as a significant variable in any of the preliminary analyses. Hence, these variables were excluded from all further analyses.

In addition, we also looked at the parent questionnaires to see whether any of the parent-reported book-reading habits at home were related to our target variables. As suggested by previous literature, children were more familiar with the narrative genre. Whereas 44% of parents reported reading expository books to their children before their children were 2 years old, 80% of parents reported having started reading narrative books to their children before their children were 2 years old. The frequency with which parents reported reading narrative books to their children was also greater than the frequency with which they reported reading expository books. Whereas 60.6% of parents reported reading narrative books to their children every day, only 18.3% of parents reported reading expository books daily. No parent reported reading narrative books less than once a week, whereas 15.9% of parents reported reading books with no regular frequency (e.g., when their children specifically asked for an expository book). However, no relation between parents' reading practices and children's learning of facts was found in the preliminary analysis. Hence, these variables were not included in further analyses.

Similarly, the order of book reading (i.e., fantastical narrative, expository) did not emerge as a significant factor. Given that order could be particularly relevant for children's preference for a source, the analysis for the conflicting information scores was run separately. There was neither a main effect of book order (p = .78) nor an interaction of book order with age (p = .26).

The expressive and receptive language scores showed ceiling effects with standardized scores. To eliminate this problem and account for the variation in children's language abilities, raw language scores were used in all analyses. Accordingly, we used age (in months) as a covariate in all analyses where we controlled for language abilities.

Controlling for children's prior knowledge of the facts and chance responding: Investigating question fidelity

We analyzed the control group's responses in two parts. First, we investigated whether the accuracy of children's answers was above chance levels. This could be done only for the eight

multiple-choice questions and the four closed-ended questions. Second, we conducted between-participants analyses of variance (ANOVAs) to investigate whether there were significant differences in accuracy between the posttest (i.e., post-book reading) answers of the 5-year-olds in the experimental group and those of the 5-year-olds in the control group.

Five questions that were answered correctly above chance level by both the control 5-year-olds (children who were not read either of the books) and the experimental 5-year-olds were removed from further analysis. These five questions consisted of one consistent, two narrative-only, and two conflicting questions (see Table 1). After eliminating these questions, children's accuracy for each category was divided by the remaining number of questions to equalize the range of scores in each category.

Correlation between children's cognitive abilities, age, and learning from expository and narrative books

A bivariate correlation analysis revealed that children's accurate response scores in all information categories (i.e., expository-only, narrative-only, conflicting, and consistent) were positively correlated with children's age and cognitive abilities (i.e., executive functioning, narrative comprehension, and receptive and expressive language) (see Table 2). Furthermore, as expected, there were significant relations between children's age and all cognitive abilities tested. Lastly, all these cognitive abilities were significantly correlated with each other. Given that all the control variables were correlated with each other and the target variables, we checked for multicollinearity. We proceeded to include the control variables in the following analyses given the acceptably low multicollinearity levels (variance inflation factors = 1.18–1.32). Based on these results, executive functioning, narrative comprehension, and receptive and expressive language abilities were used as control variables in our subsequent analyses.

Does the quantity of information children learn from expository and narrative books change by age?

To analyze the difference between children's learning from expository books and that from narrative books by age, a mixed ANOVA was conducted on children's genre-specific scores with book genre as the within-participants factor (expository-only or narrative-only) and children's age (3 years or 5 years) as the between-participants factor. Results revealed that there was a main effect of age, $F(1, 69) = 81.69$, $p < .001$, partial η^2 (η_p^2) = .54, such that 5-year-olds learned more information from both expository and narrative books compared with 3-year-olds (see Table 3). However, no main effect of genre was found, meaning that the quantity of information that children learned from expository and narrative books did not differ, $F(1, 69) = 2.02$, $p = .16$, $\eta_p^2 = .03$. An additional analysis was conducted to investigate whether the developmental difference remained after controlling for children's cognitive abilities (i.e., executive functioning, narrative comprehension, and language abilities). Consistent with the previous analysis, the results showed a main effect of age, $F(1, 66) = 7.64$, $p = .007$, $\eta_p^2 = .10$, whereas neither genre nor the genre by age interaction was significant.

Table 2
Correlations between children's age, cognitive abilities, and correct responses to different question types.

	1	2	3	4	5	6	7	8	9
1. Age	–								
2. Receptive	.76**	–							
3. Expressive	.71**	.85**	–						
4. Executive function	.47**	.57**	.52**	–					
5. Narrative comprehension	.67**	.66**	.61**	.53**	–				
6. Narrative-only	.66**	.69**	.64**	.39**	.57**	–			
7. Expository-only	.62**	.56**	.49**	.63**	.65**	.51**	–		
8. Conflicting	.57**	.56**	.46**	.28**	.44**	.49**	.39**	–	
9. Consistent	.50**	.56**	.46**	.38**	.39**	.41**	.54**	.50**	.42**

** $p < .01$.

Table 3
Proportional means (and standard deviations) of information types that children learned.

	Narrative-only	Expository-only	Conflicting (Expo-Pref)	Consistent
3-year-olds	0.54 (0.36)	0.56 (0.22)	0.48 (0.32)	0.75 (0.23)
5-year-olds	0.98 (0.08)	0.87 (0.17)	0.87 (0.25)	0.95 (0.11)

Do 3- and 5-year-olds differ in their tendencies to prioritize information learned from the expository genre when information conflicts across genres?

To analyze whether there were developmental differences in children's preference to rely on the expository book when answering conflicting questions, we coded for their reliance on the expository text by awarding 1 point for each answer that referenced the expository book. This variable was labeled Expo-Pref. All other responses, including those that relied on the fantastical narrative text and unidentifiable answers (e.g., those that referred to an external source or "I don't know" answers), were given a score of 0.

A one-way ANOVA was conducted with Expo-Pref scores as the dependent variable and children's age (3 years or 5 years) as the independent variable. Results indicated that there was a main effect of age, $F(1, 69) = 42.44$, $p > .001$, $\eta_p^2 = .38$. The 5-year-olds referred to the expository book significantly more than the 3-year-olds (see Table 3). An analysis of covariance (ANCOVA) was done to control for the effects of children's executive functioning, narrative comprehension, and language abilities on their Expo-Pref scores. Results of the ANCOVA revealed that age continued to be a significant factor after controlling for children's cognitive abilities, $F(1, 66) = 4.34$, $p = .04$, $\eta_p^2 = .06$.

Whereas 5-year-olds showed a higher reliance on the expository text when answering conflicting questions, there were some responses in both age groups that referred to the fantastical narrative book (for distribution of book references in children's answers, see Table 4). To investigate whether 3- and 5-year-olds showed different patterns of responding, two chi-square analyses were carried out. Children who answered more than half of the conflicting questions by referring to the expository book were placed in the *expository responder* category. In contrast, children who referred to the fantastical narrative book for more than half of their answers to conflicting questions were placed in the *narrative responder* category. The remaining children who demonstrated an equal preference for the fantastical narrative and expository books or who referenced unidentifiable sources along with the narrative and expository books in their answers were categorized as *ambiguous responders* (see Fig. 1 for the distribution of children by age and response pattern).

Two chi-square goodness-of-fit tests were conducted for each age group with the three categories of response patterns. Furthermore, standard residual scores were calculated for each age group to investigate whether the observed value (the number of children) in each preference category was significantly different from chance. Results of the analysis with 3-year-olds revealed that there was a significant difference in the proportion of 3-year-olds' preference type, $\chi^2(2) = 9.8$, $p < .01$. The 3-year-olds were below chance level for being classified as narrative responders ($z = -1.1$) and expository responders ($z = -1.4$). However, they were above chance level for being classified as ambiguous responders ($z = 2.58$). The analysis conducted for 5-year-olds also revealed a significant difference in the proportion of children's response patterns, $\chi^2(2) = 35.23$, $p < .01$. The 5-year-olds were above

Table 4
Frequencies of sources children referred to in their answers.

	3-year-olds		5-year-olds	
	Frequency	Percentage	Frequency	Percentage
Narrative	29	34.4	14	17.9
Expository	35	54.7	64	80.8
Unidentifiable	7	10.9	1	1.3

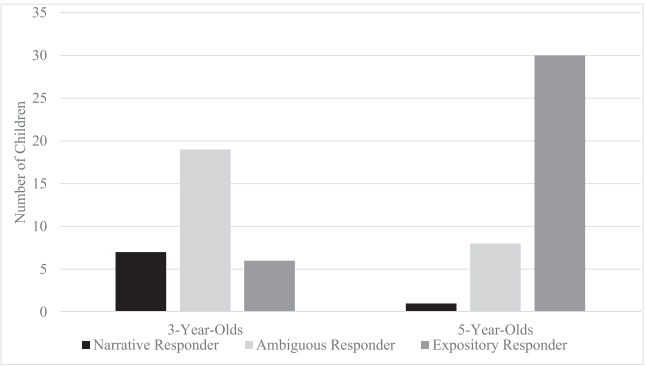

Fig. 1. Children's response patterns by age.

chance level for being classified as expository responders (z = 4.6) and below chance level for being classified as ambiguous responders (z = −1.3) or narrative responders (z = −3.3).

Does children's learning of information vary by age when the information is consistent in both genres versus when the information conflicts across the genres?

To analyze whether covering the same information in both books improved learning, the number of correct answers children gave to questions that tapped consistent information were compared with the number of correct answers they gave to conflicting information questions. A 2 × 2 mixed ANOVA with children's age as the between-participants variable and question type (consistent or conflicting) as the within subjects variable was conducted. The analysis revealed a main effect of age, $F(1, 69) = 46.69$, $p < .001$, $\eta_p^2 = .41$. The 5-year-olds ($M = 0.95$, $SD = 0.10$) learned more information as compared with the 3-year-olds ($M = 0.75$, $SD = 0.20$). There was also a main effect of information type, $F(1, 69) = 22.85$, $p = .01$, $\eta_p^2 = .24$. Children learned more consistent information ($M = 0.86$, $SD = 0.20$) as compared to conflicting information ($M = 0.69$, $SD = 0.3$). Lastly, there was a significant interaction between information type and children's age, $F(1, 69) = 6.01$, $p = .02$, $\eta_p^2 = .08$. An analysis of simple effects showed that whereas 5-year-olds displayed comparable performance on consistent versus conflicting information, 3-year-olds displayed poorer performance on conflicting information, $F(1, 69) = 23.81$, $p < .001$, $\eta_p^2 = .25$. Lastly, an ANCOVA was done to investigate children's performance on consistent versus conflicting information while controlling for their cognitive abilities. This analysis showed that age was a significant factor even after controlling for children's executive functioning, narrative comprehension, and language abilities, $F(1, 66) = 6.94$, $p = .01$, $\eta_p^2 = .09$.

Discussion

The current study explored two main aspects of the development of children's learning from expository versus fictional narrative books: (1) the amount of information children learn from each genre and (2) children's tendency to report information from one genre over the other in cases of conflicting information. Secondarily, whether children show differences in their learning when the information is consistent across the two genres was also investigated.

A central question in young children's learning from books is whether children learn information better from narrative versus expository genres. Some scholars argue for the narrative genre's primacy over other types of text for young children (Egan, 1988; Wells, 1986). According to this view, narrative schemas facilitate children's comprehension and recall of information (e.g., Stein & Glenn, 1975; Stein & Trabasso, 1982). Interestingly, research investigating whether children learn differentially based on genre is scarce.

The current study aimed to fill this gap by comparing children's learning of information from a specific type of narrative genre (i.e., fantastical narratives) with their learning from a text in an expository genre. To this end, we provided children with equal numbers of information units that were book specific, meaning that they did not overlap across the books (i.e., narrative-only or expository-only). Our study showed that children from both age groups were able to learn information from either genre. We believe it is unlikely that this finding could be explained by the reading materials (e.g., content, visual and linguistic features) or the reading styles (e.g., level of interaction) given that both variables were carefully matched across the two genres. This finding challenges the idea that the best type of book for young children should be in the narrative genre. In this vein, we provide support for others who argue that expository books provide a comparable and complementary learning context for young children (Duke, 2003; Pappas, 1993; Torr & Clugston, 1999).

The analysis of the book-specific information units also confirmed the expected developmental difference. The 5-year-olds learned more information units than the 3-year-olds even when the effects of children's language (i.e., vocabulary and narrative comprehension) and executive functioning abilities were taken into account. These findings suggest that other factors may be responsible for the difference in children's learning (e.g., working memory, metacognitive abilities, children's experience with books, children's understanding of print). For instance, older preschoolers may have had more exposure to book reading. Furthermore, in the later stages of preliteracy, they may have developed an implicit understanding that some books relay factual information (Eyden, Robinson, Einav, & Jaswal, 2013).

Given that children show comparable learning from each genre within age groups, a related question is whether they tend to prioritize information learned from one of the genres when confronted with conflicting information. This question is also relevant for the contemporary debates about young children's susceptibility to false information from fictional narratives (for a review, see Woolley & Ghossainy, 2013). In contrast to a lay characterization of younger children as gullible learners who readily trust fiction as a source for information, research has shown that 3-year-olds are skeptical toward new information that does not fit with their firsthand experience, especially when presented in fantastical fiction contexts (e.g., Shtulman & Carey, 2007; Walker et al., 2015; Woolley & Cox, 2007). This inclination is evident when young children are asked to complete fantastical and realistic stories (Weisberg, Sobel, Goodstein, & Bloom, 2013) and when they transfer knowledge from fantastical and realistic stories to real-life problem-solving situations (Richert et al., 2009; Richert & Smith, 2011). Taken together, findings from past literature converge to show that 3-year-olds are resistant to information from fantastical fiction sources.

Against the backdrop of this literature, our second aim was to investigate whether there were age-related differences in children's tendency to prioritize information from fictional narratives versus expository books. The analysis of correct answers (i.e., answers based on the expository book) revealed that 5-year-olds showed superior performance as compared with 3-year-olds. In addition, when we compared the frequencies of children who relied mainly on the fantastical narrative book, those who relied mainly on the expository book, and those who did not prioritize either source, we found distinct age-related profiles. The 5-year-olds could be characterized as displaying a tendency to prioritize information learned from the expository book given that 77% of 5-year-olds relied mainly or exclusively on the expository source when answering conflicting questions. In contrast, the 3-year-olds were more likely to be categorized as ambiguous responders who made equal use of the two sources belonging to the different genres. These results indicate that 3-year-olds, unlike 5-year-olds, did not display a clear preference for prioritizing the expository book as a more reliable source for information acquisition. This finding supports previous literature in that 3-year-olds could not be characterized as trusting narrative sources for knowledge acquisition.

The current study cannot directly answer *why* children showed a developmental difference in their tendency to prioritize one genre (i.e., expository) over the other (i.e., fantastical narrative). Several explanations are plausible. One concerns children's evaluations of the plausibility of the specific information units presented in a given genre. In the current study, the expository genre exclusively included correct (and plausible) information. It is possible that children judged the units of information to be learned from the fantastical narrative as less plausible (e.g., a caterpillar who eats hard candy). Another possibility is children's ability to generally evaluate the texts as belonging to more

or less reliable genres. Even when the information unit itself is plausible, features of the text such as the inclusion of fantastical content (e.g., anthropomorphized characters) and the discourse style (e.g., use of generic language) may alert children to the difference between the sources and affect their consequent learning. An important limitation of the current study is that these possible explanations for why 5-year-olds relied more on the expository book cannot be disentangled.

Although it is possible that children's tendency to prioritize information from expository texts stems solely from their recognition of generic language or fictional content, it is also possible that by 5 years of age children start developing an explicit understanding of the purposes of these genres. Existing research on children's understanding of genres has exclusively focused on the implications of an implicit understanding such as sensitivity to differences in language (Donovan & Smolkin, 2006; Pappas, 1993; Torr & Clugston, 1999). In the current study, our probing of children's ability to differentiate between the two genres remained indirect. We did not ask children which text was a better or more reliable source of information. Instead, we inferred their preference through their choice of the source when answering questions. Future research that manipulates the degree of fantasy and language characteristics, and possibly probes children's trust in these sources both directly and indirectly, would provide an answer to the question of why 5-year-olds made more use of the expository text in cases of conflicting information. Thus, future research that specifically investigates the developmental timetable of children's explicit recognition (form) and understanding (function) of different genres is needed.

A further worthwhile inquiry would be to manipulate the explicit pedagogical intent or the framing of the book-reading activity (Jetton, 1994). Introducing the book reading as a learning activity versus an activity to have fun and observing children's differential learning may also provide a deeper understanding of what factors affect young children's learning of information from these two genres.

As a secondary question, we compared children's learning when the information was consistent versus when the information was conflicting across the genres. The expected age differences and question type differences were qualified by an interaction. Whereas 5-year-olds were comparably competent in answering questions that asked for conflicting or consistent information units, 3-year-olds showed better learning when the information was consistent across the two genres. However, the current study does not allow us to conclude whether it is sheer exposure to information units or exposure to an information unit in multiple genres that facilitates increased learning. There is some evidence showing that exposure to content vocabulary in different genres promotes children's learning (Pollard-Durodola et al., 2011). This evidence lends support to the possibility that exposing children to new information in different genres might prove to be an effective pedagogical strategy. However, only future work that systematically manipulates exposure and genre would provide a deeper understanding of this issue.

A notable limitation of the current study pertains to the elimination of some questions due to above-chance level responding by control children, which meant that we were left with fewer questions in some of our categories than was initially planned. A possible way to overcome this difficulty in future work would be to create materials about less familiar themes (e.g., a rare animal species instead of caterpillars).

In conclusion, some of the limitations of the current study are trade-offs related to its strengths. This study aimed to provide children with interactive book-reading contexts that remained true to the one-to-one book-sharing activities in which children frequently engage with adults. To that end, we provided children with prototypical examples of books belonging to two genres (i.e., fantastical narrative and expository) that were carefully matched in features that could affect interest, motivation, and difficulty. In addition, the reading protocols were carefully constructed to elicit comparable child engagement, and all questions about the texts were asked by individuals who were not present during the book reading. Most notably, the study used a within-participants design that allowed for the probing of children's preference for prioritizing information from one genre over the other when the information conflicted across the texts. The results showed that in interactive book-sharing contexts, 5-year-olds prioritized information they received from the expository book over the fantastical narrative. In addition, 3-year-olds could not be characterized as gullible learners who prefer information from fantastical narratives over expository sources. Future work that targets foundational features of these genres (i.e., degree of fantasy and language characteristics) will provide

a better understanding of young children's changing conceptions and consequent judgments of information from different genres.

Appendix A. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jecp.2021.105170.

References

Anderson, J., Anderson, A., Lynch, J., & Shapiro, J. (2004). Examining the effects of gender and genre on interactions in shared book reading. *Literacy Research and Instruction, 43*, 1–20.

Beals, D. E., De Temple, J. M., & Dickinson, D. K. (1994). Talking and listening that support early literacy development of children from low-income families. In D. K. Dickinson (Ed.), *Bridges to literacy: Children, families, and schools* (pp. 19–40). Malden, MA: Blackwell.

Bergman Deitcher, D., Johnson, H., & Aram, D. (2019). Does book genre matter? Boys' and girls' word learning from narrative and informational books in the preschool years. *Journal of Research in Reading, 42*, 193–211.

Berument, S. K., & Güven, A. G. (2010). *[Turkish Expressive and Receptive Language Test: Receptive Vocabulary sub-scale] (TIFALDI-RT)*. Istanbul: Turkish Psychological Society.

Browning, E., & Hohenstein, J. (2015). The use of narrative to promote primary school children's understanding of evolution. *Education, 3–13*(43), 530–547.

Bruner, J. (1991). The narrative construction of reality. *Critical Inquiry, 18*, 1–21.

Butler, A. C., Zaromb, F. M., Lyle, K. B., & Roediger, H. L. III, (2009). Using popular films to enhance classroom learning: The good, the bad, and the interesting. *Psychological Science, 20*, 1161–1168.

Cates, C. B., Weisleder, A., Seery, A. M., Canfield, C. F., Berkule Johnson, S., Dreyer, B. P., & Mendelsohn, A. L. (2017, May). Early reading matters: Long-term impacts of shared bookreading with infants and toddlers on language and literacy outcomes. Paper presented at the annual meeting of the Pediatric Academic Societies. San Francisco, CA.

Cervetti, G. N., Bravo, M. A., Hiebert, E. H., Pearson, P. D., & Jaynes, C. A. (2009). Text genre and science content: Ease of reading, comprehension, and reader preference. *Reading Psychology, 30*, 487–511.

Corriveau, K. H., Kim, A. L., Schwalen, C. E., & Harris, P. L. (2009). Abraham Lincoln and Harry Potter: Children's differentiation between historical and fantasy characters. *Cognition, 113*, 213–225.

Culatta, B., Hall-Kenyon, K. M., & Black, S. (2010). Teaching expository comprehension skills in early childhood classrooms. *Topics in Language Disorders, 30*, 323–338.

Cummins, S., & Stallmeyer-Gerard, C. (2011). Teaching for synthesis of informational texts with read-alouds. *The Reading Teacher, 64*, 394–405.

Debbie, R. A., & Harris, V. J. (1997). "Look at this nest!" The beauty and power of using informational books with young children. *Early Child Development and Care, 127*, 217–231.

Dickinson, D. K., De Temple, J. M., Hirschler, J. A., & Smith, M. W. (1992). Book reading with preschoolers: Coconstruction of text at home and at school. *Early Childhood Research Quarterly, 7*, 323–346.

Donovan, C. A., & Smolkin, L. B. (2006). Children's understanding of genre and writing development. In C. A. MacArthur, S. Graham, & J. Fitzgerald (Eds.), *Handbook of writing research* (pp. 131–143). New York: Guilford.

Duke, N. K. (2003). Information books in early childhood. *Young Children, 58*, 14–20.

Duke, N. K., Bennett-Armistead, V. S., & Roberts, E. M. (2003). Bridging the gap between learning to read and reading to learn. In D. M. Barone & L. M. Morrow (Eds.), *Literacy and young children: Research-based practices* (pp. 226–242). New York: Guilford.

Egan, K. (1988). *Primary understanding: Education in early childhood*. New York: Routledge.

Eller, R. G., Pappas, C. C., & Brown, E. (1988). The lexical development of kindergarteners: Learning from written context. *Journal of Reading Behavior, 20*, 5–24.

Eyden, J., Robinson, E. J., Einav, S., & Jaswal, V. K. (2013). The power of print: Children's trust in unexpected printed suggestions. *Journal of Experimental Child Psychology, 116*, 593–608.

Ganea, P. A., Ma, L., & DeLoache, J. S. (2011). Young children's learning and transfer of biological information from picture books to real animals. *Child Development, 82*, 1421–1433.

Ganea, P. A., Canfield, C. F., Simons-Ghafari, K., & Chou, T. (2014). Do cavies talk? The effect of anthropomorphic picture books on children's knowledge about animals. *Frontiers in Psychology, 5*. https://doi.org/10.3389/fpsyg.2014.00283.

Gelman, S. A., Ware, E. A., Manczak, E. M., & Graham, S. A. (2013). Children's sensitivity to the knowledge expressed in pedagogical and nonpedagogical contexts. *Developmental Psychology, 49*, 491–504.

Gerrig, R. J., & Prentice, D. A. (1991). The representation of fictional information. *Psychological Science, 2*, 336–340.

Gottschall, J. (2012). *The storytelling animal: How stories make us human*. New York: Mariner Books.

Hargrave, A. C., & Sénéchal, M. (2000). A book reading intervention with preschool children who have limited vocabularies: The benefits of regular reading and dialogic reading. *Early Childhood Research Quarterly, 15*, 75–90.

Hopkins, E. J., & Weisberg, D. S. (2016). The youngest readers' dilemma: A review of children's learning from fictional sources. *Developmental Review, 43*, 48–70.

Jacobs, J. (1894). *The fables of Aesop*. New York: Macmillan.

Jetton, T. L. (1994). Information-driven versus story-driven: What children remember when they are read informational stories. *Reading Psychology, 15*, 109–130.

Justice, L. M., & Kaderavek, J. N. (2003). Topic control during shared storybook reading: Mothers and their children with language impairments. *Topics in Early Childhood Special Education, 23*, 137–150.

Kelemen, D., Emmons, N. A., Seston Schillaci, R., & Ganea, P. A. (2014). Young children can be taught basic natural selection using a picture-storybook intervention. *Psychological Science, 25*, 893–902.
Legare, C. H., Lane, J. D., & Evans, E. M. (2013). Anthropomorphizing science: How does it affect the development of evolutionary concepts? *Merrill-Palmer Quarterly, 59*, 168–197.
Lynch, J. S., van den Broek, P., Kremer, K. E., Kendeou, P., White, M. J., & Lorch, E. P. (2008). The development of narrative comprehension and its relation to other early reading skills. *Reading Psychology, 29*, 327–365.
Maduram, I. (2000). "Playing possum": A young child's responses to information books. *Language Arts, 77*, 391–397.
Marsh, E. J., & Fazio, L. K. (2006). Learning errors from fiction: Difficulties in reducing reliance on fictional stories. *Memory & Cognition, 34*, 1140–1149.
Marsh, E. J., Meade, M. L., & Roediger, H. L. III, (2003). Learning facts from fiction. *Journal of Memory and Language, 49*, 519–536.
Martin, J. R. (1985). *Factual writing: Exploring and challenging social reality*. Victoria, Australia: Deakin University Press.
Marulis, L. M., & Neuman, S. B. (2010). The effects of vocabulary intervention on young children's word learning: A meta-analysis. *Review of Educational Research, 80*, 300–335.
Massey, S. L. (2014). Making the case for using informational text in preschool classrooms. *Creative Education, 5*, 396–401.
Mol, S. E., & Bus, A. G. (2011). To read or not to read: A meta-analysis of print exposure from infancy to early adulthood. *Psychological Bulletin, 137*, 267–296.
Nadel, J. (2002). Imitation and imitation recognition: Functional use in preverbal infants and nonverbal children with autism. In A. N. Meltzoff & W. Prinz (Eds.), *The imitative mind: Development, evolution, and brain bases* (pp. 42–62). London: Cambridge University Press.
Pappas, C. C. (1993). Is narrative "primary"? Some insights from kindergarteners' pretend readings of stories and information books. *Journal of Reading Behavior, 25*, 97–129.
Paris, A. H., & Paris, S. G. (2003). Assessing narrative comprehension in young children. *Reading Research Quarterly, 38*, 36–76.
Pellegrini, A. D., Perlmutter, J. C., Galda, L., & Brody, G. H. (1990). Joint reading between black Head Start children and their mothers. *Child Development, 61*, 443–453.
Pentimonti, J. M., Zucker, T. A., & Justice, L. M. (2011). What are preschool teachers reading in their classrooms? *Reading Psychology, 32*, 197–236.
Pentimonti, J. M., Zucker, T. A., Justice, L. M., & Kaderavek, J. N. (2010). Informational text use in preschool classroom read-alouds. *The Reading Teacher, 63*, 656–665.
Pollard-Durodola, S. D., Gonzalez, J. E., Simmons, D. C., Davis, M. J., Simmons, L., & Nava-Walichowski, M. (2011). Using knowledge networks to develop preschoolers' content vocabulary. *The Reading Teacher, 65*, 265–274.
Price, L. H., Kleeck, A., & Huberty, C. J. (2009). Talk during book sharing between parents and preschool children: A comparison between storybook and expository book conditions. *Reading Research Quarterly, 44*, 171–194.
Reese, E., & Cox, A. (1999). Quality of adult book reading affects children's emergent literacy. *Developmental Psychology, 35*, 20–28.
Richert, R. A., Shawber, A., Hoffman, R., & Taylor, M. (2009). Learning from fantasy and real characters in preschool and kindergarten. *Journal of Cognition and Development, 10*, 1–26.
Richert, R. A., & Smith, E. I. (2011). Preschoolers' quarantining of fantasy stories. *Child Development, 82*, 1106–1119.
Robertson, S. J. L., & Reese, E. (2017). The very hungry caterpillar turned into a butterfly: Children's and parents' enjoyment of different book genres. *Journal of Early Childhood Literacy, 17*, 3–25.
Saracho, O. N. (2017). Parents' shared storybook reading—learning to read. *Early Child Development and Care, 187*, 554–567.
Saracho, O. N., & Spodek, B. (2010). Families' selection of children's literature books. *Early Childhood Education Journal, 37*, 401–409.
Shtulman, A., & Carey, S. (2007). Improbable or impossible? How children reason about the possibility of extraordinary events. *Child Development, 78*, 1015–1032.
Stein, N. L., & Glenn, C. G. (1975). An analysis of story comprehension in elementary school children: A test of a schema. In R. O. Freedle (Ed.), *New directions in discourse processing* (pp. 53–120). Norwood, NJ: Ablex.
Stein, N. L., & Trabasso, T. (1982). What's in a story? An approach to comprehension and instruction. In R. Glaser (Ed.), *Advances in instructional psychology* (pp. 213–267). Hillsdale, NJ: Lawrence Erlbaum.
Symons, D. K. (2004). Mental state discourse, theory of mind, and the internalization of self–other understanding. *Developmental Review, 24*, 159–188.
Teale, W. H. (2003). Reading aloud to young children as a classroom instructional activity: Insights from research and practice. In A. van Kleeck, S. A. Stahl, & E. B. Bauer (Eds.), *On reading books to children: Parents and teachers* (pp. 103–133). Mahwah, NJ: Lawrence Erlbaum.
Torr, J., & Clugston, L. (1999). A comparison between informational and narrative picture books as a context for reasoning between caregivers and 4-year-old children. *Early Child Development and Care, 159*, 25–41.
Trivette, C. M., Simkus, A., Dunst, C. J., & Hamby, D. W. (2012). Repeated book reading and preschoolers' early literacy development. *CELLreviews, 5*(5) http://www.earlyliteracylearning.org/cellreviews/cellreviews_v5_n5.pdf.
Walker, C. M., Gopnik, A., & Ganea, P. A. (2015). Learning to learn from stories: Children's developing sensitivity to the causal structure of fictional worlds. *Child Development, 86*, 310–318.
Weisberg, D. S., Sobel, D. M., Goodstein, J., & Bloom, P. (2013). Young children are reality-prone when thinking about stories. *Journal of Cognition and Culture, 13*, 383–407.
Wellman, H. M., & Liu, D. (2004). Scaling of theory of mind tasks. *Child Development, 75*, 523–541.
Wells, G. (1986). *The meaning makers: Children learning language and using language to learn*. Portsmouth, UK: Heinemann.
Whitehurst, G. J., Arnold, D. S., Epstein, J. N., Angell, A. L., Smith, M., & Fischel, J. E. (1994). A picture book reading intervention in day care and home for children from low-income families. *Developmental Psychology, 30*, 679–689.
Woolley, J. D., & Cox, V. (2007). Development of beliefs about storybook reality. *Developmental Science, 10*, 681–693.
Woolley, J. D., & Ghossainy, M. E. (2013). Revisiting the fantasy–reality distinction: Children as naïve skeptics. *Child Development, 84*, 1496–1510.
Yopp, R. H., & Yopp, H. K. (2006). Informational texts as read-alouds at school and home. *Journal of Literacy Research, 38*, 37–51.

Yopp, R. H., & Yopp, H. K. (2012). Young children's limited and narrow exposure to informational text. *The Reading Teacher, 65*, 480–490.
Zelazo, P. D. (2006). The Dimensional Change Card Sort (DCCS): A method of assessing executive function in children. *Nature Protocols, 1*, 297–301.