



# A Comparative Study on Visual Attention, Verbal Engagement and Parental Behaviors During Shared Book Reading Using Scripted and Unscripted Story Books for Children with Autism Spectrum Disorder

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**Purpose:** Shared book reading is nowadays considered as an important early language stimulation technique in the field of speech language pathology which encourages parent-child bonding and creates a conducive environment for language development. The parent-child interaction is important for a child with Autism Spectrum Disorder. This interaction along with adequate and contingent parental responses fosters early language development in children. Language-related parent behaviors promote children's oral language skills by not only exposing the child to book-related vocabulary (e.g., labeling pictures, explaining word meanings, and linking words to everyday events), but also through explicit teaching of meaning-related skills related to the overall structure of the story (i.e., story grammar). Print-related SBR behaviors draw the child's attention to print-related features of the book, for example, letter names and sounds.

**Methods:** To better understand the relationship between children's visual attention, verbal engagement and parent shared book reading behaviors during shared book reading tasks, this study included 10 preschoolers on the Autism Spectrum and their parents sharing an unfamiliar storybook including which are scripted and unscripted. Videos of the shared book reading interactions were transcribed and coded for visual attention, verbal engagement and parent behaviors using observational coding schemes. The frequency of visual attention, verbal engagement and parental SBR behaviors were compared between the scripted and unscripted story books using statistical tests-Wilcoxon signed rank test and Fisher's Exact test.

**Results:** Result reveals that there was no statistically significant difference between frequency of visual attention during unscripted story books and scripted books. Parental behaviors parameters pertaining to shared book reading were analyzed and found a significant difference in usage of book language is greater for scripted story books compared to unscripted books.

**Conclusions:** The key findings shows the type of book (scripted or unscripted) have a significant impact and its contribution to the intervention of children with Autism Spectrum Disorder. Parental SBR behaviors can in turn contribute to the development of childhood language and preliteracy skills.

**Keywords:** Shared book reading, Verbal engagement, Visual attention, Parent behaviors, Autism Spectrum Disorder



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## INTRODUCTION

Shared book reading is an act when an adult reads a story book to a child or group of children. Parental reading, picture explanation, character and event discussions, and application of book content to real-world situations are all components of SBR (Saracho, 2017). The act of shared book reading is important owing to the fact that there is increased evidence regarding the impact of shared reading on language development and early literacy skills of children. The research done in this aspect reveals that the children tend to exhibit a better understanding of print and meaning while engaging in shared reading with their caregivers or educators. Shared book reading is used by both typically developing children and those with speech and language disorders. Benefits of shared book reading includes development of early language skills, vocabulary development, dialogic reading, development of triadic attention, print and phonological awareness, and grammatical development. The concept of shared book reading can be emulated to the children with disability, wherein a pressing need for early communication development is prevailing. One such population which requires immediate intervention is Autism Spectrum Disorders. Shared book reading can be used to improve the triadic attention of the child to the caretaker and the book. It can boost language development in children with Autism Spectrum Disorder. The use of these foundational skills will help children with Autism Spectrum Disorder to be successful readers. The research also focuses on the effect of shared book reading on early language skills including vocabulary growth, print awareness, narration and conversation skills, phonological awareness, and future reading abil-

ity. SBR also focuses on vocabulary development and dialogic reading which in turn helps in language development.

Factors affecting shared book reading are as follows: type of book used, child’s attention, caregiver reading quality and repeated reading. The shared book reading in the current study was based on scripted and unscripted story books. The scripted story books are the one with written descriptions while unscripted story books are those that do not have a prescribed script or description. The textual properties of books may differentially influence the quantity and quality of parents’ language and, hence, differentially relate to children’s language outcomes. There is evidence that provides the importance of exposing children to a “varied diet” of book genre and type as each can have a distinct impact on children’s language and early literacy skills (Pappas, 2006). Both alphabet and rhyming books can promote children’s emergent literacy skills such as letter identification and phonological awareness (e.g., Murphy et al., 2022). Exposure to narrative books is an effective means through which children can acquire comprehension strategies (Lynch & van den Broek, 2007). Wordless picture books may provide unique advantages to language development as they facilitate discourse between caregiver and child. Comparisons of SBR with text-based and wordless picture books indicate that teachers ask more questions and more actively encourage child participation in narrative co-construction and children in turn produce more utterances during wordless picture book episodes (Schick et al., 2021).

There are different ways in which SBR has been studied in literature among them visual attention, verbal engagement and parental behaviors, and emergent literacy (Wicks et al. 2020) were utilized.

**Table 1.** Comparison of frequency of visual attention towards book, parent, and elsewhere using scripted and unscripted story books using Wilcoxon signed rank test

	Scripted				Unscripted				Z	p
	Mean ± SD	Median (IQR)	Minimum	Maximum	Mean ± SD	Median (IQR)	Minimum	Maximum		
Book frequency	8±6.5	6.5 (3.5-10.5)	2.0	21.0	7.8±6.5	6.5 (2.75-10)	1.0	24.0	0.18	0.858
Parent frequency	0.7±0.8	0.5 (0-1.25)	0.0	2.0	0.5±1	0 (0-1)	0.0	3.0	0.71	0.480
Elsewhere frequency	5.5±8.6	2 (0-8.25)	0.0	28.0	5.4±7.2	0.5 (0-11.5)	0.0	19.0	0.14	0.888

**Table 2.** Comparison of duration of visual attention towards book, parent, and elsewhere using scripted and unscripted story books

	Scripted				Unscripted				Z	p
	Mean ± SD	Median (IQR)	Minimum	Maximum	Mean ± SD	Median (IQR)	Minimum	Maximum		
Book duration	67.2±44.8	69 (25.96-96.87)	9.1	150.0	81.4±51.7	66.17 (45.25-103)	35.0	180.0	1.07	0.285
Parent duration	2±2.8	1 (0-2.88)	0.0	8.7	1.6±3.3	0 (0-2.5)	0.0	10.1	0.42	0.674
Elsewhere duration	26.3±36.8	10.5 (0-40.33)	0.0	110.5	52.8±106.2	3.5 (0-61.25)	0.0	344.1	0.42	0.674

The visual attention refers to visual gaze directed towards the book, parent and elsewhere for at least 2 seconds. The verbal engagements were analyzed by using a modified version of Son and Tineo's 2016 coding scheme. The behaviors were coded based on Wicks et al's study as Not engaged or Fully engaged. The behaviors of the children assessed includes total child utterances, utterances in response to parent, text reading, spontaneous utterances, story inference, and story description. The parental behavior investigated by the researcher includes total parent utterances, use of book language, use of questions and use of prompts. Language boosting behaviors including incidents of turn taking, head direction, caregiver's speech act and caregiver's speech act responses and the engagement coding was done using the Leuven Scale of Active Engagement (Laevers, 2008). Lingwood et al., (2022) viewed shared book reading as a 'transactional framework' in which the caregiver and child are operating as a community of practice (CoP) which involves three dimensions including mutual engagement, a joint enterprise and shared repertoire. Visual attention and

verbal interaction during SBR are components of joint attention known to facilitate emergent literacy learning for TD preschool-age children (Wicks et al., 2020). The emergent literacy was researched using receptive vocabulary and alphabet knowledge. The Peabody Picture Vocabulary Test-Fourth Edition (PPVT-4; Dunn & Dunn, 2007) was used as a measure of children's receptive vocabulary while alphabet knowledge was assessed using a letter-name sub-test from the Phonological Awareness Literacy Screening for Preschoolers (PALS-PreK; Invernizzi et al., 2004). Shared book reading in children with Autism Spectrum Disorder enhances specific social communication skills that are an integral part of their intervention. While indulging in Shared book reading children with Autism Spectrum Disorder tend to demonstrate an understanding of behavior and social skills that can improve their quality of life. Studies show that caregivers who engage in shared reading activities and who are asking questions and commenting on the text while reading with their children improved the participation of their children in the SBR task (Fleury et al., 2021). The study by Fleury et al. in

**Table 3.** Comparison of child behaviors using scripted and unscripted story books

	Scripted		Unscripted		Z	p
	Mean ± SD	Median (IQR)	Mean ± SD	Median (IQR)		
Total child utterances	5±8	1.0	5.7±9.8	0.0	0.63	0.528
Spontaneous utterances	1.3±3.5	0.0	1.6±3.5	0.0	0.45	0.655
Utterances in response to parent	0±0	0.0	0±0	0.0	0.45	1.000
Text reading	0±0	0.0	0±0	0.0	0.45	1.000
Story description	0±0	0.0	0±0	0.0	0.45	1.000
Story inference	0.2±0.4	0.0	0.1±0.3	0.0	1	0.317

**Table 4.** Comparison of total verbal engagement during shared book reading using scripted and unscripted story books

Total verbal engagement	Scripted		Unscripted		p <sup>#</sup>
	Count	Percent	Count	Percent	
Not engaged	7	70.0	7	70.0	0.686
Fully engaged	3	30.0	3	30.0	0.686

<sup>#</sup>Fisher's Exact Test.

**Table 5.** Comparison of parent SBR behaviors using scripted and unscripted book

	Scripted				Unscripted				Z	p
	Mean ± SD	Median (IQR)	Minimum	Maximum	Mean ± SD	Median (IQR)	Minimum	Maximum		
Total parent utterances	226.2±187.4	170 (96.5-302.88)	48.0	661.5	336.6±196.4	365.5 (131.5-473.25)	42.0	662.0	2.6**	0.009
Use of book language	5.6±7.8	2.5 (0-8.75)	0.0	22.0	0.5±1.1	0 (0-0.5)	0.0	3.0	2.21*	0.027
Questions	10.9±6.5	12.5 (5-14.5)	0.0	21.0	8.7±9.2	5.5 (2-13.25)	0.0	29.0	0.98	0.326
Prompts	9.7±11.7	5.5 (2.75-13.63)	2.0	40.5	15.4±10.3	17 (3.75-22.5)	1.0	31.0	1.78	0.075

2021 states that children with Autism Spectrum Disorder will require strategies in shared book reading tasks to support social communication and emergent literacy skill development (e.g., vocabulary knowledge, language comprehension) that are specifically linked to future reading comprehension. The intervention studies on SBR reveals that the children on the spectrum demonstrate progress in communicative acts (Akemoglu Y, Tomeny KR.2021). In the study by Wicks et al. in 2020 on parental behaviors on children with Autism Spectrum Disorder reveals the child demonstrated a range of print-and meaning-related SBR behaviors without focusing on scripts.

Poor language skills in the early years can have long-lasting impact on the child (Hoff, 2013; Pace, Alper, Burchinal, Golinkoff, & Hirsh-Pasek, 2018). Shared book reading has an positive impact on increasing the amount and content of children's conversations, thereby enhancing early language development. SBR contributes to meaning comprehension and production in human communication (Reyes, 2007). Reading increases the variety of vocabulary and extends the extratextual sentences that children become able to produce (Hammett et al., 2003). SBR may foster important communicative abilities in children, such as phonological awareness, narrative and conversation skills, grammatical development, print awareness, dialogic reading, future reading ability speech fluency, and connections with previous knowledge, that together establish the basis for language comprehension and vocabulary acquisition (Suárez et al., 2018).

### Need for the study

The need for the study is to understand the effect of shared book reading in children with Autism Spectrum Disorder and to use this information in intervention. The shared book reading is widely used in intervention but the type of book whether scripted or unscripted is not studied extensively. This study is a preliminary attempt to find out the effect of book type in shared book reading. The study primarily focuses on the type of book especially wordless book or worded book. There was a lack of research in the field which was focused on comparing the visual attention, verbal engagement and parental behaviors during shared book reading using scripted and unscripted story books in children with Autism Spectrum Disorder. So this study is focused on selecting an effective story book type that can be used for the intervention of children with autism spectrum disorder.

### Aim of the study

1. To evaluate whether the visual attention, verbal engagement and parental behaviors during shared book reading differs in

scripted and unscripted books on children with Autism Spectrum Disorder.

### Objective of the study

2. To compare visual attention during shared book reading using scripted and unscripted books in children with Autism Spectrum Disorder.
3. To compare verbal engagement during shared book reading using scripted and unscripted books in children with Autism Spectrum Disorder.
4. To compare parental behaviors during shared book reading using scripted and unscripted books in children with Autism Spectrum Disorder.

## METHODS

### Design and procedure

Using scripted and non-scripted books, a comparative study of visual attention, verbal engagement, and parent behaviors was conducted with 10 children with Autism Spectrum Disorder. The Department of Neurodevelopmental Sciences (NDS) of the National Institute of Speech and Hearing (NISH) was where the parent-child dyad for ASD children was recruited from. Participants included a subset of children with Autism Spectrum Disorders and their parents who had completed at least secondary school. Ten individuals with Autism Spectrum Disorders who have had a formal diagnosis using INCLIN Diagnostic Tool for Autism Spectrum Disorder or Childhood Autism Rating Scale-2 (CARS-2) and whose language development is between 24 and 48 months old were chosen. Using the Assessment of Language Development and Communication Developmental Eclectic Approach to Language Learning (Comm DEALL) Developmental Checklist, the language age of the chosen participants was verified. The Communication Matrix assessments provided by Charity Rowland, the participants' communication was on conventional level.

### Childhood Autism Rating Scale-2 (CARS-2) [Authors: Eric Schopler, Mary E. Van Bourgondien, Glenna Janette Wellman, Steven R. Love].

CARS-2 is a widely used diagnostic tool for diagnosing children with ASD. It considers children's behaviors with reference to relationship to people, imitation, emotional response, body language, use of objects, adaptation to change, response to sensory stimulation, communication (verbal and non-verbal), activity level and so on.

The rating is done on a scale of 1-4, depending on the level

of deviance of the specific. CARS-2 score for children in the study range 37 and higher which indicate severe symptoms of ASD.

### **Communication Developmental Eclectic Approach to Language Learning developmental Checklist (Comm DEALL) [Author: Prathibha Karanth]**

To assess developmental skills of children up to the age of 6 years, along eight developmental domains, with norms based on an Indian population.

The skills that are assessed are gross motor skills, fine motor skills, activities of daily living, receptive language, expressive language, cognitive skills, social skills, and emotional skills.

The receptive and expressive language age from the Communication DEALL was used for determining the language age of the selected children with Autism Spectrum Disorder.

### **Inclusion and exclusion criteria for children**

a. Inclusion criteria: Diagnosis of ASD confirmed by the INCLIN Diagnostic Tool for Autism Spectrum. Disorder or Childhood Autism Rating Scale-2 (CARS-2). Language age of 24 to 48 months confirmed by Communication DEALL.

b. Exclusion criteria: Additional neurological diagnoses. Unaided auditory-visual impairments. Inability to remain in play for at least 10 minutes.

### **Inclusion and exclusion criteria for parents**

c. Inclusion criteria: Primary caregiver of the children with ASD. Malayalam, a south Indian language as the primary language. No significant concerns related to hearing, vision, motor, and cognition. Parents should have at least secondary level education.

### **Exclusion criteria**

Parents with psychiatric conditions, seizures and other severe health conditions. Parents with education or work exposure related to behavioral sciences, psychology and rehabilitation. Parents who doesn't have at least secondary level education.

### **Material and procedure**

The Review Authority for Research (RAR) Committee of NISH provided ethical approval for the conduct of the study. An informed consent (Appendix A) form from each participant was collected prior to the study and the research process was explained. Detailed participant information from a demographic questionnaire served as the basis for the research process. The entire process of data collection was carried out in a clinical set-

ting. The parent child dyad were seated comfortably in such a manner that the child's visibility to parent and book was not interrupted. They were instructed to engage in a shared book reading activity as they would do in the home environment. Two books provided for SBR include 'A very hungry caterpillar; A Pull-Out Pop Up' written by Eric Carle, published by Puffin Books and "Good dog, Carl" by Alexandra Day, published by Little Simon Publishing division. The book named 'A very hungry caterpillar A Pull-Out Pop Up' was a scripted book which included a written description for the pictures depicted whereas the "Good dog, Carl" was an unscripted book which has only pictures. Both of the materials were novel to the dyad and this was done to reduce the familiarity effect. The parents were instructed to choose one book to interact with their children without controlling for book order and all of the parents choose the scripted book over the unscripted book in the initial attempt. The parent child interaction was captured as a video recording. The second author and third author transcribed verbatim and examined all parent child utterances made during the SBR engagement.

Under two constructs, child involvement in the SBR was taken into consideration: visual attention and verbal engagement.

Visual attention: Child's visual attention during the SBR was coded according to whether the child was directing their gaze towards the story book, parent or elsewhere per parent. The previous research reported that the child was sustaining visual attention if they held the gaze in the specified direction for at least 2 seconds. The duration of time a child looked at a parent, a book, and elsewhere was measured. For the statistical analysis, the aggregate scores for the selected measures were employed.

Verbal engagement: Children's level of verbal engagement was measured using an adapted version of Son and Tineo's (2016) coding scheme. The original scale consisted of four indicators scored on a three-point rating scale (1 = not engaged; 2 = somewhat engaged; 3 = fully engaged). To reduce potential subjectivity and error in coding, we utilized a modified dichotomous rating scale (1 = not engaged; 2 = fully engaged) given by Rachele Wicks et al. The parental behaviors were those behaviors that were exhibited during shared book reading by the parents that improve language development in children. The parental shared book reading behaviors considered include total parent utterances, use of book language, use of prompt and use of questions. The parental and child shared book reading behaviors were rated by two clinicians and the inter rater



reliability was also considered.

## RESULTS

### Statistical analysis

Categorical and quantitative variables were expressed as frequency (percentage) and mean  $\pm$  SD respectively. Wilcoxon Signed Rank Test was used to compare ordinal parameters between groups. Chi-square test was used to find association between categorical variables. For all statistical interpretations,  $p < 0.05$  was considered the threshold for statistical significance. Statistical analyses was performed by using a statistical software package SPSS, version 20.0 in 10 children with Autism Spectrum Disorder.

### Descriptive analysis of child behaviors

**Visual attention:** The comparison of visual attention during shared book reading using scripted and unscripted books in children with Autism Spectrum Disorder was done as the first objective and visual attention for at least 2 seconds was considered for the task. The comparison of frequency and duration of visual attention towards books, parent, elsewhere during shared book reading task using scripted and unscripted story books was done using Wilcoxon signed rank test. The children exhibited no statistically significant difference in the frequency and duration of visual attention among two book types.

During shared book reading task using scripted story book, 4 children showed more visual attention towards books, 3 children showed more attention towards parents and 4 children showed more visual attention towards elsewhere in terms of frequency and duration.

During shared book reading task using unscripted story book, 6 children showed more visual attention towards books, 3 children showed more attention towards parents and 4 children showed more visual attention towards elsewhere in terms of frequency and duration.

While 3 of the children haven't shown visual attention towards parents or towards elsewhere when engaged in shared book reading using both the books in terms of frequency and duration.

**Verbal engagement:** During shared book reading using scripted and unscripted books in children with Autism Spectrum Disorder, verbal engagement is analyzed based on total child utterances, total verbal engagement, spontaneous utterances, utterances in reading, text reading, story description, story inferences. Total child utterances were greater for un-

scripted story books than scripted story books. 4 children showed more utterances for unscripted story books whereas 2 children showed more utterances for scripted story books while 4 other children did not produce any utterances.

The comparison of total verbal engagement during shared book reading using scripted and unscripted story books was done using Fisher Exact Test and it was counted and scored in percentage. The scoring was based on a 2 point scale and was rated as not engaged and fully engaged For both scripted and unscripted story books, 7 children were not engaged while 3 of the children were fully engaged. 1 child showed more story inference in scripted book than in unscripted book and 1 child showed story inference in both scripted and unscripted books while 8 children did not show any story inference. There is no noticeable difference between utterances in reading, text reading, story description, during shared book reading using scripted and unscripted story books.

### Descriptive analysis of parent SBR behaviors

The total utterances produced by parents during shared book reading for unscripted is greater than that for scripted books. The frequency of book language used by parents during interaction was found to be greater for scripted books when compared to unscripted books. Both of the parameters showed statistically significant differences. Even though the usage of questions during shared book reading were greater for scripted books when compared with unscripted books it doesn't reveal a statistically significant result. One of the parents hasn't used any questions during the shared book reading using both books. The use of prompts during shared book reading was greater for unscripted books when compared with scripted books.

## DISCUSSION

The current study aimed at exploring different aspects of visual attention and verbal engagement of children with language age of 2-4 years on the autism spectrum during SBR and the SBR behaviors of their parents while using scripted and unscripted story books. The type of book selected for SBR has been an important factor in determining the success of this specific technique as an intervention strategy. This article is a preliminary effort in exploring the effect of book type on SBR. The results of this study indicated that the type of book selected for shared book reading has an effect on visual attention, verbal engagement of children with Autism Spectrum Disorder and parental SBR behavior. Shared book reading is

an important task that also helps in building parent-child interaction and increase the vocabulary of the child.

**Visual attention:** The first objective was comparing visual attention during shared book reading using scripted and unscripted books in children with Autism Spectrum Disorder. Visual attention during shared book reading utilizing scripted and unscripted story books did not change noticeably when we compared it to attention directed at the book, parent, and other objects. Children exhibited limited instances of coordinated joint attention, in which most children rarely looked toward the parent either while they or the parent spoke throughout the SBR session (Adamson et al., 2009). The choice of book does not seem to affect the reader's focus on the task at hand. The situational level variables of book type and overall quality of the adult's book reading for that book best explained the percentage of time a kid spent jointly engaged in the book-reading with their caregiver (Veronica et.al 2018). The amount of time spent in passive interaction was positively correlated with children's cognitive abilities. In other words, younger children were seen gazing away from the book or at the caregiver more often than older children. This research identifies a specific group of people who may be most at risk for reading failure and who will probably need additional help and training to participate in shared reading and reap its benefits. Wicks et al. 2022 suggest that engaging children with ASD in SBR with digital storybooks and prompting children with ASD to look at print and pictures during SBR may be helpful in facilitating joint attention to storybook content.

**Verbal engagement:** The verbal engagement of children with autism spectrum disorder during shared book reading of scripted and unscripted books is evaluated based on total child utterances, total verbal engagement, spontaneous utterances, utterances during reading, text reading, story description, and story inferences. The child utterances were reported to be higher in scripted story books than in unscripted story books when verbal engagement was examined. Most of the child utterances were nouns. Some children were fully engaged in shared book reading using scripted and unscripted story books while the others did not show any noticeable difference in total verbal engagement. The results in the current research was inline with the finding of Saracho & Spodek, 2010 that verbal engagement in children includes labeling and describing the aspects and content of the story whereas the children demonstrated limited text reading.

Story inference during shared book reading using scripted and unscripted books were exhibited by a few children while others did not show any story inference. The children who

engage in story inference were able to express their views in one to word utterances. Other characteristics include few utterances related to story inference despite parent facilitation, with a large number scoring zero for this indicator which was novel and may provide insight into what aspects of SBR engagement to target in interventions to support children's story comprehension.

When engaging in SBR from both scripted and unscripted storybooks, there is no discernible difference in the utterances made during reading, text reading, or story description. Given the aptitude for comprehending that people with ASD have for this genre, using nonfiction or informational texts during group reading activities may be a crucial factor. Fictional stories often have strong social undertones that force readers to adopt the viewpoint of the main characters. For many kids with ASD, understanding fictional literature requires the capacity to draw conclusions and adopt other people's viewpoints (Baron-Cohen et al., 1997). Nonfiction informational writings are thought to be easier for people with ASD to comprehend since they have less social content and rely more on generic knowledge (Brown et al. 2013).

Children responded to parent queries and prompts with the most utterances, as expected by the researcher and the literature study. For both children with language disorders and children on the spectrum (Fleury & Schwartz, 2017; Tipton et al., 2017), questions and prompts during SBR are a well-known turn-taking method used by parents to elicit and promote child engagement and response.

**Parental behaviors during shared book reading:** The overall quantity of parental utterances, the use of book language, and the use of prompts and questions are among the parental SBR behaviors that were examined. Total parent utterances during shared book reading for unscripted books are higher than those for scripted books when we compare the parent SBR behaviors. When analyzing the parental language used during the scripted storybooks, the words and sentence structure used mostly resembles the language depicted in books.

When compared to the scripted book, maternal speech production in the wordless condition was significantly different. Mothers produced more language and new utterances in the wordless condition than in the worded condition.

While participating in both tasks, the parents frequently make comments and utterances that are behavioral directives, demonstrating that these kinds of utterances may not always be related to book style. Such language may in reality reflect parents' general inclination to discipline kids (e.g., by telling them to "sit

down”) and praise them (e.g., by saying things like “good job”). Parental language use during SBR has similar findings by Mirela Conica et al., (2023).

In this study, we expected that mothers of children with ASD would use more question-posing utterances and would label language more frequently in stories that were scripted than in books that were not scripted. The utterances produced by most parents include questions like what is this? Do you know what is this? Which color is this?, directive statements like pay attention, look here?, nouns and verbs. The parent child interaction during SBR reveals that while using the scripted books parents used more questions than unscripted books (Andrea Barton et al., 2020). Among the 10 parents only one parent didn’t ask any questions about either book during the shared book reading.

Additionally, we predicted that they would read the content less directly and make fewer print references. In comparison to the unscripted book task, mothers of children with ASD did on average ask more questions and use more book language while engaging with worded book. In most of the instances the Parents were involved in labeling the vocabulary more often in books (Andrea et al., 2023). When compared to the usage of scripted picture books, the use of unscripted picture books may foster greater engagement in conversation between mother and child during storytelling chores.

Usage of prompts during shared book reading were greater for unscripted when compared with scripted books. Every caregiver engages with their child using different strategies that appeal to their child, and is responsive to the child’s preferences, abilities, and overall behavior during reading. In this particular context, the child responds to caregiver’s prompts and recognises them as cues for sustaining shared attention. The cues utilized not only contextualize the story book but also the wider shared reading activity, pointing to how it is meant to be perceived and negotiated in the local context of interaction. The use of unscripted picture books may encourage greater engagement in dialogue between mother and child during storytelling tasks when compared to the use of scripted picture books. The current results are encouraging because it demonstrates that the book type impacts the mother’s language production and suggests that wordless picture books can be utilized as a tool to encourage mothers to speak more when engaging in story-telling/reading activities with their child. Some mothers did not read what was beyond the text in the worded condition which may have reduced the level of social interaction.

In comparison, mothers seemed to engage in more conversation with their child in the wordless condition. This suggests that

the use of wordless picture books may be particularly useful in encouraging the social interaction aspect of shared book reading. Telling a story without text may be perceived as more effortful than reading with text, however, this reflects a deeper level of thinking that is encouraged through this modality (Reid et al., 2018). Hence focusing on story-telling rather than simply text-reading may impact children’s development of sequencing skills, directionality, long-term memory, vocabulary and self expression in these conditions (Miyata & Freeman, 2020). Significantly greater number of word tokens (total number of words), word types (total number of unique words), and utterances when a wordless picture book, compared to a worded book, was used in shared reading with their teacher (Chaparro-Moreno et al., 2017). Westerveld et al. (2020) found that parents were able to engage their child in SBR and demonstrated a range of print- and meaning-related SBR behaviors with no evidence of a focus on print. Multiple regressions showed direct effects of parents’ explicit teaching of story structure and use of questions on their children’s verbal participation in children with ASD.

## CONCLUSION

In conclusion, the study analyzed visual attention, verbal engagement and parental SBR behaviors during shared book reading using scripted and unscripted story books in children with Autism Spectrum Disorder. There was no significant difference between visual attention and verbal engagement of children with Autism Spectrum Disorders during shared book reading using both the books. The statistically significant differences were noticed in the total parent utterances and use of book language in the parental SBR behaviors as the unscripted story books lack prescribed scripts for the story. This study demonstrates that, when compared to the use of worded picture books, the use of wordless picture books may encourage greater engagement in conversation between mother and child during storytelling tasks. A greater number of parent and child utterances were noted during shared book reading using unscripted story books because their utterances were not restricted to the book language. The main conclusions demonstrate that the type of book scripted or unscripted has a major influence and contributes to the intervention of toddlers with Autism Spectrum Disorder. Linguistic and pre literacy skills in children can be developed as a result of parental SBR behaviors.

## Limitation

Though this study provides insight into how shared book



reading task influences individuals with Autism Spectrum Disorder, it has several limitations including

- Only individuals with Autism Spectrum Disorder and their caretakers were considered for this study, typically the developing population was excluded from this study.
- The effect of shared book reading on literacy skills were not mentioned in this study.
- The link of socio economic status on shared book reading was not considered in the present study.
- The research was carried out in a single time setting, that resulted in poor cooperation and restlessness of the child towards the end of the session.
- The children are malayalam speaking, but the materials used were western story books.
- Parents' experiences of engaging in shared book reading were not considered.
- The current research works doesn't look into the order effect of book presentation during SBR activity.

### Implication of the study

The current study sheds light into the concept of shared book reading during the intervention of children with Autism Spectrum Disorders as well as it looks into the type of books that can be used for the same. The findings can be incorporated in the intervention planning and execution.

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**Appendix A.** Information to the participants

**Information to the participants**

You are requested to participate in the research study entitled 'A Comparative study on visual attention, verbal engagement and parent behaviors during shared book reading using scripted and unscripted story book for children with autism spectrum disorder' by Sahra Ullas and Aksa. Susan Biju under the guidance of Ms. Veena Mohan P (ASLP). This study is to evaluate whether visual attention, verbal engagement and parent behaviors during shared book reading using scripted and unscripted story books in children differs in children with Autism Spectrum Disorder.

If you choose to participate you may subsequently withdraw from the study at any time without penalty or consequences of any kind. Information will be collected through (method of collection data and amount of time that it will take). This study has no medication involved and is non- invasive. The information collected will be kept confidential. The information will be provided in the language understandable to you.

**Undertaking by the investigator**

Your consent to participate in this study is sought. You have the right to refuse consent or withdraw the same during any part of the study without any reason. If you have any doubts about the study please feel free to clarify the same.

**Consent**

I have been informed about the procedure of the study. I have understood that I have the right to refuse my consent or withdraw it any time during the study. I am aware that by subjecting this investigation I will have to give more time for assessments by the investigator and that these assessments do not interfere with the benefits (if any). All the information has been provided in the language understandable to me. I have no objection to participate in the program, and thus hereby give consent to participate in the study. After understanding all these facts, I volunteer to enroll myself in this study.

Place:

Date:

Signature of the participant :

(Name and address)

**Appendix B.** Demographic questionnaire

Sl No. :

Name:

Age:

Date of Birth:

Gender:

Address:

Phone No.:

Occupation:

Education of the parent:

Annual Income:

No. of Persons At Home:

No. of Children:

Age of Child/Children:

No. of Working Members:

For clinician:

Name of the clinician:

Diagnosis of the child:

Details of intervention:

Remarks:

### Appendix C.

Two books provided for SBR include 'A very hungry caterpillar' written by Eric Carle ,published by Puffin Books and "Good dog, Carl" by Alexandra Day,published by Little Simon Publishing division. The book named 'A very hungry caterpillar A Pull-Out Pop Up' was a scripted book which included a written description for the pictures depicted whereas the "Good dog, Carl" was an unscripted book which has only pictures.