PARENT PERSPECTIVES REGARDING SIMPLIFIED LANGUAGE INPUT FOR CHILDREN WITH AUTISM: A QUALITATIVE INTERVIEW STUDY

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ABSTRACT

Language input strategies are common among language interventions for young children with autism. However, recommendations for how adults should modify or structure their language to support language learning are controversial. Little is known about parent perspectives on simplified language input strategies, even though parents are often coached to implement these strategies at home. Understanding parent perspectives can inform how clinicians introduce a language input intervention strategy to a parent, identify or adjust family-centered goals, and increase parent buy-in. In the current study, parents of children with autism participated in a semi-structured interview to gather their perspectives regarding what forms of speech feel most natural/unnatural, what they believe to be the best way to talk to their child to support their language development, and what their reactions are to language input recommendations. Three types of language input were highlighted throughout the interview: grammatically complete language input, telegraphic (i.e., ungrammatical) language input, and one-up language input (i.e., using utterances that are 1-2 words longer than the child's spoken language level). Qualitative analysis of the interviews revealed four major themes, each with associated subthemes. Results indicate that parents hold a wide range of perspectives on simplified language input, but that grammatically complete language input is more likely to feel natural and more beneficial for their child's language development compared to ungrammatical language input. Parents also reported that they modify their own language in different ways for different reasons, although the universal goal was to do what is best for their child. These findings emphasize the importance of understanding caregiver perspectives when instructing parents on how they should talk to their child.

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Introduction

When working with young children with autism who have language delays, speech-language pathologists (SLPs) often focus on optimizing the language environment to support the child's language outcomes. A common method of optimizing the language environment is to give special attention to the language input provided to children. Numerous studies have established the link between adult language input and child language outcomes (Bang & Nadig, 2015; Bang et al., 2020b; Hart & Risley, 1995; Hoff, 2003; Rowe & Snow, 2019; Weisleder & Fernald, 2013). However, the recommendations for how the adult should modify or structure their language vary by intervention, theoretical background, and personal experience (Bredin-Oja & Fey, 2014; Sandbank & Yoder, 2016; van Kleeck et al., 2010).

It is widely believed that some form of simplification of adult speech (e.g., less syntactical complexity, less lexical variation, and more semantic redundancy than typical adult conversation) is useful when speaking to young children with limited expressive language levels (i.e., only beginning to acquire 2- to 3-word utterances; Roberts et al., 2014; van Kleeck et al., 2010). However, the level of simplification that should be recommended is controversial (van Kleeck et al., 2010; Venker et al., 2015, 2019). Simplification recommendations may go so far as to contradict one another, with some recommending full-length, grammatically complete utterances (similar to adult speech) and others recommending hyper-shortened utterances that only include certain parts of speech, such as nouns and verbs (van Kleeck et al., 2010). Whatever the recommendation, language input strategies are a common occurrence among language interventions for young children with autism. However, the empirical evidence behind many of these strategies is limited (van Kleeck et al., 2010; Venker et al., 2015, 2019).

In language interventions for young children with autism, language input recommendations are often delivered to parents, who are expected to regularly use the input strategy with their child as an intervention component (Heidlage et al., 2019; B. Ingersoll & Wainer, 2013; Waddington et al., 2020). Given the parents' significant involvement in language input strategies for children with autism, understanding their perspectives surrounding language input is an important consideration, not only for improving implementation fidelity and child language outcomes, but also for following best-practice guidelines within the field of speech-language pathology.

Autism Spectrum Disorder

Autism is a neurodevelopmental disorder characterized by social communication deficits and repetitive behaviors and/or restricted interests (American Psychiatric Association, 2013). As of 2021, one in 44 children in the United States has been diagnosed with autism (Maenner et al., 2021). This is an increase from the one in 54 estimated in 2016 (Maenner et al., 2020), and the six to seven in 1,000 estimated in 2002 (Rice et al., 2004). Although language impairments are not a requirement for an autism diagnosis, they often co-occur, and it is specified upon diagnosis whether the child has autism with or without language impairment (American Psychiatric Association, 2013). Studies have shown how most young children with autism present with delayed expressive and/or receptive language abilities (Charman et al., 2003; Ellis Weismer et al., 2010; Ellis Weismer & Kover, 2015; Luyster et al., 2007). Language impairments among children with autism are incredibly heterogeneous and can present themselves on a broad range of ability/impairment (Tager-Flusberg, 2004; Wittke et al., 2017).

Language Interventions for Children with Autism

Many language and communication interventions for young children with autism integrate family-centered approaches (e.g., developmental/social-pragmatic [DSP] approaches, naturalistic developmental behavioral interventions [NDBI], federally-funded Early On programs; Binns & Oram Cardy, 2019; Bruinsma et al., 2020; Douglas et al., 2020; Inbar-Furst et al., 2020). Family-centered practices focus on the individual strengths and needs of the child's family, foster collaborative relationships between the interventionist and the family, and thoroughly engage the child's parents and caregivers in the intervention and decision-making process (Douglas et al., 2020; Inbar-Furst et al., 2020). This approach expands on the established evidence that parent involvement maximizes child outcomes in early intervention (EI; Maglione et al., 2012; Stahmer et al., 2017).

Parents are viewed as their child's primary interventionist when family-centered practices utilize parent-mediated intervention approaches. In these interventions, professionals and parents are partners in providing functional, optimized intervention for the child (Lee, 2015); professionals coach the parents on how to incorporate intervention into the child's daily routines, and the parents implement that intervention and collaborate with the professional (Althoff et al., 2019; Boyd et al., 2010). Parent-mediated interventions offer many advantages, including an increased quantity of intervention time, more opportunities to generalize skills to naturalistic environments, lower cost, and higher ratings of parent self-efficacy (Heidlage et al., 2019; Roberts & Kaiser, 2015; Schertz et al., 2011; Wainer et al., 2017).

As the primary interventionist in parent-mediated interventions, parents' perspectives regarding the intervention and its strategies play a large role in the fidelity of implementation and overall client outcomes (Lee, 2015; Rieth et al., 2018). The caregivers' motivation to apply the

intervention techniques, their ability to consistently implement the techniques with fidelity, and their overall buy-in to the intervention is strongly influenced by the perspectives they hold (Rieth et al., 2018; Stahmer et al., 2017; Wainer et al., 2017). Because of this relationship between parent perspectives and client outcomes, many clinicians who employ parent-mediated interventions pay special attention to understanding what factors could affect the parent's participation and engagement by gathering parent perspectives surrounding the intervention goals, the strategies used to reach those goals, and the rationale for those strategies to increase parent buy-in and client outcomes (Lee, 2015; Rieth et al., 2018).

Parent-mediated language interventions (PMLIs) are common among parent-mediated interventions for children with autism (Binns & Oram Cardy, 2019; Schreibman et al., 2015) PMLIs recognize the important role parents play in their children's language development (Roberts & Kaiser, 2011). These language-oriented interventions supply caregivers with the knowledge and instruction to support their child's language development by modifying the parents' behaviors and implementing language intervention throughout their child's daily routine in naturally occurring contexts (Heidlage et al., 2019). The role of the trained professional in PMLIs is to provide guidance and evidence-based information to inform parents on how to best support their child's language learning. The reasoning is that PMLIs will produce language outcomes that are more functional and generalizable for the child than clinician-implemented therapy alone. In line with the goals of family-centered practices, a study by Roberts and Kaiser (2015) demonstrated the potential to increase intervention exposure with a PMLI in a randomized control trial. Their results showed how parents who participated in the PMLI reported using the language intervention techniques an average of 17 hours per week, with a

maximum of 22 hours per week. This contrasts with what might be as little as one hour per week in clinician-implemented speech-language therapy.

Many PMLIs target parent language input by teaching parents how to modify their language when communicating with their child. Theories of communication have recognized the significant role that modifying language can play in improving comprehension and communicative interactions between speakers of every age, cognitive ability, and social standing (e.g., Communication Accommodation Theory; Giles, Coupland, & Coupland, 1991). It is generally accepted that some form of simplification commonly occurs when parents talk to young children (e.g., fewer syntactically complex sentences, or a simplified and less varied lexicon; Snow & Ferguson, 1977). The evidence linking child language outcomes to the quantity and quality of parent language input has also been established (Adamson et al., 2020; Bang et al., 2020; Bottema-beutel & Kim, 2020; Hoff & Naigles, 2002; Huttenlocher et al., 2010; Rowe, 2012; Schreibman et al., 2015; Venker et al., 2015). Parent language input becomes the "language nutrition" from which children begin to understand and use language (Bang et al., 2020).

However, there is some research suggesting that symptoms characteristic of autism (e.g., fewer reciprocal behaviors, difficulty initiating/maintaining joint attention, and less engagement in communicative interactions) negatively impact the amount of parent language input that is provided (Roberts et al., 2014). This relationship between children's communicative behaviors and parent language input ties into the transactional approach (Sameroff, 1975) which states that language learning occurs in transactional (i.e., back-and-forth) exchanges between the child and caregiver. To effectively support language development, these exchanges require sufficient communicative interaction from both parties to respond contingently to one another (Heidlage et

al., 2019; Roberts et al., 2014). However, if the child has a low frequency of communication and does not respond to communicative attempts, the caregiver has fewer opportunities to model and expand language for the child, resulting in reduced language input and fewer language learning opportunities for the child (Heidlage et al., 2019; Roberts et al., 2014).

With the possibility of insufficient language input, making the most of the language provided to children with autism is all the more important. Therefore, providing an appropriate level of language nutrition to children with autism and other populations with language delays is often a primary goal of PMLIs. However, the specific language environment that provides the most ideal package of language quantity and quality for language development is not defined. As a result of this uncertainty, there is debate on how parents should be modifying their language to best support their child's language development (Bottema-beutel & Kim, 2020; van Kleeck et al., 2010).

The Language Input Debate

One area of controversy on language input concerns the overall length of parents' utterances. Some clinical researchers recommend providing full-length utterances (Bang & Nadig, 2015; Sandbank & Yoder, 2016), while others recommend limiting the length of utterances to match or slightly exceed the child's own utterance length (Bruinsma et al., 2020; Frost et al., 2019; Frost et al., 2020). Producing utterances that match the child's utterance length or add only one to two words is commonly referred to as the one-up rule. To demonstrate, if a child is non-speaking, parents would be instructed to speak in primarily one-word utterances (e.g., *Do you want milk?* might be replaced with *Milk?*). If a child speaks in one-word utterances, parents would be instructed to use one- or two-word utterances to follow the one-up rule (e.g., *Do you want milk?* might be replaced with *Want milk?*). As the child's language ability develops

into longer spoken utterances, parents are instructed to also speak in longer utterances to continue to match and slightly exceed the utterance length of their child's speech.

Related to utterance length, recommendations for utterance complexity are also under debate. Syntax and grammar are two key components of overall utterance complexity. The debate on the complexity of language input centers on whether to produce complete, grammatically correct utterances or to forgo grammatical structures by eliminating "function words" (e.g., prepositions, articles, and conjunctions) while retaining "content words" (e.g., nouns and verbs; van Kleeck et al., 2010; Venker et al., 2015). The latter of these two grammatical simplification strategies is called telegraphic input (TI), named for its clipped content and sentence structure (Brown, 1973; van Kleeck et al., 2010). In addition to removing function words, TI may also exclude bound morphemes, such as present progressive *-ing*, plural *-s*, or past-tense *-ed* (Bredin-Oja & Fey, 2014; Venker et al., 2015). To give an example of TI, the grammatical sentence *The doggie's running* might become *Doggie run.* Children often speak in telegraphic utterances when they are in the early stages of typical language development, and some researchers argue that matching or slightly exceeding these telegraphic utterances benefit children's language learning (van Kleeck et al., 2010).

To determine which forms of simplification are most beneficial to support language development in children with autism, a logical step would be to look at the effectiveness of interventions that incorporate each simplification strategy. However, among interventions for young children with autism, language skills and parent input are rarely the only targets in intervention. Instead, there may be a host of other treatment strategies and goals. Each of these strategies and goals can be grouped together, without being independently manipulated. This

lack of separation means that the effects and magnitude of each individual strategy within an intervention (the "active ingredients" of the intervention) are often unclear.

Some researchers have attempted to identify the active ingredients within interventions that target language input. Waddington and colleagues (2020) evaluated parent use of specific techniques from the Early Start Denver Model (ESDM), a parent-implemented intervention that promotes the use of TI and the one-up rule. The results indicated that although the overall response to intervention was positive, the correlations between each technique and child language outcome widely varied in strength (in an absolute sense). The authors concluded that the individual techniques within ESDM may not be equally effective for improving child language outcomes. These results suggest that without assessing the effect of each independent treatment strategy in an intervention, some strategies could be responsible for the majority of progress made in a given intervention, masking the small or absent effects from other strategies. Further exploration of the active (or inactive) ingredients, such as simplified language input, is needed to maximize the effectiveness of a given intervention (Bottema-beutel & Kim, 2020; S. L. Eisenberg et al., 2020; Gulsrud et al., 2016; Van Horne, 2020; Vivanti et al., 2018).

Telegraphic Input and Shortened Utterances

While grammatically correct and rich input is growing in its popularity as a strategy to support language development, TI and shortened utterances frequently appear in therapy (Venker et al., 2019) and among language interventions for children with autism. Many interventions that do recommend TI or hyper-shortened utterances are structured around developmental frameworks such as DSP interventions (Binns & Oram Cardy, 2019) and NDBIs (Bruinsma et al., 2020; Schreibman et al., 2015; Waddington et al., 2020). Developmental frameworks center on the theory that all children learn in a similar developmental sequence of language acquisition,

albeit at different rates (Binns & Oram Cardy, 2019; Ingersoll, 2010). Development-based PMLIs that employ the use of TI and the one-up rule attempt to help children progress to the next language milestone by providing language input that models that milestone and follows the sequence of the child's development. Development-based PMLIs have been shown to be effective in treating the core symptoms of autism and are among the most common treatment approaches for targeting language and communication in children with autism (Binns & Oram Cardy, 2019; Schreibman et al., 2015; Stahmer et al., 2017). An inexhaustive list of development-based PMLIs that recommend TI and/or shortened utterances are ESDM, Project ImPACT (Improving Parents as Communication Teachers), Enhanced Milieu Teaching (EMT), *More Than Words* – The Hanen Program, and JASPER (Joint Attention, Symbolic Play, Engagement, and Regulation).

Each of the above interventions have been shown to lead to positive language outcomes in children with autism (Carter et al., 2011; Schreibman et al., 2015). For example, a meta-analysis on the effects of ESDM found an overall significant moderate effect size between seven different developmental outcomes among an aggregate of 640 children with autism (Fuller et al., 2020). Even though the combined effect on language outcomes was significant, language was one of only two factors that were responsible for the overall significant moderate effect size on the developmental outcomes. Similar findings for ESDM were reported by Geoffray et al. (2019), who evaluated the effectiveness of ESDM following 10 months of intervention. Participants showed significant improvements in verbal cognitive skills, most noticeably in the area of receptive language. An earlier study by Estes et al. (2015) that evaluated the long-term effects of ESDM among children with autism also found that the significantly positive gains in

expressive and receptive language were maintained two years post-treatment, to a higher degree than the children with autism who participated in the intervention-as-usual group.

Another prominent example of a successful development-based PMLI for children with autism is Project ImPACT. The results of two pilot studies that assessed the effectiveness of Project ImPACT in community settings found that participation resulted in significant improvements (Stadnick et al., 2015) or large effect-sizes (Stahmer et al., 2020) in child communication compared to care as usual. In a multiple-baseline study that measured the efficacy of Project ImPACT to improve spontaneous child language outcomes, Ingersoll and Wainer (2013) found that six out of the eight children in their study showed improvements in spontaneous language. The two participants who did not show significant improvements in spontaneous language were functionally nonverbal at baseline. However, the authors acknowledged that modeling and expanding language using the one-up rule did not predict spontaneous language and suggested that these techniques may not be the active ingredients that led to the children's improvements in spontaneous language. In a separate study by Ingersoll and colleagues (2012) that compared three interventions for improving language outcomes in children with autism, the authors found that interventions relying solely on modeling and expansion (based on the one-up rule) showed only minimal short-term effects. These findings align with the results of Ingersoll and Wainer (2013) and highlight the need to isolate the active ingredients within individual interventions.

Despite their application in many PMLIs, neither TI or the one-up rule has a strong empirical base, and recent research suggests that these intervention techniques may either be ineffective or do more harm than good (Bredin-Oja & Fey, 2014; van Kleeck et al., 2010; Venker et al., 2015, 2019). In a meta-analysis by van Kleeck and colleagues (2010) that asked

whether telegraphic or grammatical input is more beneficial for children with language impairments, the three studies that compared the effectiveness between telegraphic and grammatical input either had small sample sizes (Jones, 1978; Willer, 1974) or did not show any significant differences between telegraphic and grammatical input and their effect on comprehension and production (Fraser, 1972; Jones, 1978). A study by Bredin-Oja and Fey (2014) tested whether telegraphic or grammatical imitation prompts resulted in more accurate and consistently reliable imitations by young children with a language delay (but not autism). Their results found that telegraphic imitation prompts did not offer any advantages for young children with language delays when compared to providing grammatically complete imitation prompts. Furthermore, three of the five children produced significantly more grammatical morphemes in response to receiving grammatically complete prompts, suggesting that children are more likely to produce and achieve grammatically complete utterances if they are provided with grammatical models.

Several studies have made explicit recommendations against the use of TI, or ungrammatical language input (Bang et al., 2020; Eisenberg, 2015; Sandbank & Yoder, 2016; Van Horne, 2020; van Kleeck et al., 2010; Venker et al., 2015, 2019, 2020). Many of these studies cite the issue of restricting the amount of access children have to consistent and reliable language models from which to build their own grammatical utterances. One study transcribed language samples of children with autism and their parent to measure the frequency of obligatory determiner deletion in object noun phrases (e.g., *Can you see __ ball?*; a characteristic of TI) in parent speech, and its relationship to the child's spoken lexical diversity (Venker et al., 2015). Researchers found that a higher frequency of determiner deletion in parent speech was significantly associated with fewer unique words in the child's spoken language. Venker and

colleagues (2015) argued that because determiners contain information on the nouns within a sentence, removing them may hinder children's language learning. The authors also suggested that the lack of consistency in deleting obligatory determiners from utterances could be introducing a further barrier to language development among children who are learning the rule-based patterns and syntactical structure within a language (Venker et al., 2015).

Another study by Hadley et al. (2011) found that grammatical consistency for tense-marking was the strongest predictor of morphosyntactic growth in their sample of toddlers who were not producing tense morphemes at 21 months of age. In other words, providing consistently accurate grammatical morphemes was associated with greater use of those grammatical morphemes by the children who heard them. Similar to the arguments made by Venker and colleagues (2015), the investigators suggested that providing grammatically ambiguous or inconsistent language input introduces competing/unclear information to a child who is in the process of acquiring an appropriate grammatical system. Some argue that this is especially true for children with a language impairment because the development of morpho-syntactical systems is already an area of concern (Leonard, 1998).

Theoretical Support and Empirical Evidence for Grammatically Complete Utterances

Much of the theory behind providing grammatically correct input was succinctly stated by Eisenberg (2015, p. 119): "Children must hear grammatical features in order to learn them." TI is meant to help children focus on/learn content words by eliminating grammatical morphemes and function words, therefore assisting children to focus on and learn content words (Eisenberg, 2015). However, providing grammatical markers and function words have been shown to improve learning of content words (Eisenberg, 2015). For example, in a series of studies by Golinkoff and colleagues (1992; as cited in Bedore & Leonard, 1995), toddlers were

presented with a novel word paired with a novel object performing a novel action. Grammatical morphemes indicating whether the novel word referred to a noun (when *the* preceded the word) or a verb (when the word ended in *-ing*). During testing, the children were shown to successfully interpret the word as a noun or verb depending on which grammatical morpheme was used.

The concept of bootstrapping also emphasizes the importance of providing grammatical models with morphemes and function words to support language comprehension. Bootstrapping theorizes that children process information at the morpheme-, word-, phrase-, or sentence-level to form a foundation from which to learn new words (semantic bootstrapping) or new sentence forms (syntactic bootstrapping; Bedore & Leonard, 1995). In other words, children can use syntactic cues like bound morphemes and function words to comprehend utterances and build an accurate representation of a language's syntactic system. A study by Naigles (1990) demonstrated how children use syntactic bootstrapping to interpret the meaning of new words. Twenty-four toddlers ages 1 to 2 participated in a looking-while-listening task that showed a video of a duck and/or bunny performing a novel action. The action could be identified as causative (*The duck is gorping the bunny*) or non-causative (*The duck and the bunny are gorping*) depending on the sentence's syntactic frame. Researchers found that the children looked significantly longer at the scenario representing the accurate verb meaning based on the syntactic frame they heard (causative or non-causative). The results demonstrated how children use syntax to interpret the meaning of novel words.

One study by Gillette et al. (1999) presents an especially compelling case for the importance of syntactic bootstrapping. The investigators asked their adult participants to identify the verbs used by mothers in a recorded parent-child play interaction. However, the level of contextual/syntactic cues provided to the participants varied by condition. For example, some

participants watched a recording of the play interaction without any audio, while others were also given a written list of nouns included in the sentence with the target verb. Participants in the most syntactically informative condition would receive the maximum amount of syntactic bootstrapping opportunities in the form of full sentences with a nonsense verb replacing the target verb. The purpose of this design was to simulate the contexts and environments that children learn language from. As the level of syntactic information increased, so did the accuracy with which the participants guessed the correct verb. Of particular note is the difference in accuracy between the condition that just provided the muted video and nouns (i.e., only content words; 16.5%), and the condition that provided the full syntactic information (minus the verbs; 90.4%). While the sample included in this study varies greatly from that of young children with autism, the results effectively demonstrate how humans rely on syntactic cues to derive meaning, even when a content word is paired with a visual cue in a social context.

As discussed by Fusaroli and colleagues (2019), most of the research on how environmental effects, such as parent language input, affect language outcomes has focused on children who are typically developing. However, results from studies that focus on children with autism suggest that greater sentence complexity with grammatical, full-length utterances are associated with positive language outcomes (Bang et al., 2020). Many of these studies have used the mean length of utterance (MLU) in morphemes or words to describe sentence complexity. MLU should not be conflated with grammaticality, but it can be assumed that utterances following the one-up rule (particularly for children who are non-speaking or speak up to three-word utterances) or rules for TI are generally shorter than their full-length, grammatical counterparts. In a longitudinal study including children who are typically developing, children with autism, and their parents, Fusaroli and colleagues (2019) found that parent MLU (in

morphemes) was significantly and positively associated with longer child MLU and lexical diversity, even when controlling for the child's diagnosis and expressive language level. The investigators also suggested that greater parental syntactic complexity affects child language outcomes (for both children with autism and children with typical development) at a greater magnitude than other parent language input qualities, such as lexical diversity. Because child expressive language levels in both groups did not modulate the positive effect that longer parent MLU had on the child's later syntactic and lexical growth, Fusaroli et al. (2019) also concluded that greater parental syntactic complexity led to more gains in the child's language outcomes regardless of the child's initial expressive language ability.

Several other studies have also found a significant positive relationship between grammatically more complex sentences and greater language outcomes among children with autism. In a 10-minute free-play interaction, Bang and Nadig (2015) studied the relationship between various forms of linguistic input from parents to their child with autism or with typical development, respectively. The investigators found that parent MLU significantly predicted their child's spoken vocabulary 6 months later, more so than the child's initial spoken vocabulary level. These results are similar to Fusaroli et al.'s (2019) findings, which suggested that increased syntactic complexity (as measured by MLU) is beneficial for children with autism at any given language level. A correlational meta-analysis by Sandbank and Yoder (2016) on parent input (as measured by MLU) only found a weak positive correlation between MLU and child language outcomes across all eligible disability groups, but a subgroup analysis revealed a significant positive correlation between the two variables for children with autism. These results come from 4 studies (not previously mentioned here) with a combined participant group of 47

children with autism, suggesting that increased morphosyntactic complexity is a particularly potent variable for improving language outcomes in children with autism.

Perspectives on Simplified Language Input

With the lack of consensus regarding simplified language input for children with autism, clinicians and researchers are recommending further research on this topic to inform evidence-based practice (EBP; Bottema-Beutel et al., 2020; van Kleeck et al., 2010; Venker et al., 2019). The American Speech-Language-Hearing Association states that evidence-based practice consists of a) internal/external evidence, b) client/caregiver perspectives, and c) clinical expertise (ASHA, n.d.). Understanding caregiver perspectives is especially relevant in interventions where the caregiver is the primary interventionist, as in the case of PMLIs. As mentioned previously, there is a strong relationship between parent perspectives about intervention techniques and intervention effectiveness/implementation fidelity (Rieth et al., 2018; Stahmer et al., 2017; Wainer et al., 2017). Unfortunately, research on parent perspectives about language intervention strategies is limited (Lee, 2015; Stahmer et al., 2017), and research into perspectives on simplified language input is even more rare (Venker et al., 2019).

Fortunately, research in this area is growing. In a study by Venker and colleagues (2020), a survey sent to 93 SLPs gathered the participants' perspectives on simplified language input. Participating SLPs were asked to identify whether a given utterances (either grammatically complete or telegraphic) sounded like something they would say in intervention, as well as their perspectives on the usefulness of TI for children with a language delay. The investigators found that SLPs who did not report TI as useful or selected "Neutral" for usefulness rated telegraphic utterances as something they would say in therapy significantly less than grammatical utterances. A similar pattern was seen among the SLPs who viewed TI as useful: they rated TI as something

they would say at a slightly higher rate than the SLPs who did not rate it as useful, but this rating was not significantly different from their rating of whether they would use grammatical utterances. Regardless of which language input form the SLPs rated as useful, the relationship between the SLPs' ratings of utterances and their perspectives on TI point to a link between SLPs' practices and perspectives.

Following similar methods to Venker and colleagues (2020), Andary (2020) gathered parent perspectives on simplified language input through a questionnaire survey sent out through a state-funded EI program. To the best of our knowledge, this is the only study that has focused on parent perspectives about simplified language input. Seventy-seven parents of children enrolled in the early intervention program participated. The children of these respondents were under 35 months of age, had an established condition (e.g., autism, cerebral palsy, or Down syndrome) and/or had been diagnosed with a developmental delay. When parents were asked whether they believe shortened utterances or TI are beneficial for children speaking at or below 2-word utterances, results indicated that 63% of participants rated shortened utterances as beneficial, while 52% found TI to be beneficial. Interestingly, only 8% and 12% gave "Neutral" ratings for whether shortened utterances and TI, respectively, are beneficial for children with language delays, indicating that "parents have a preference on language input one way or another" (Andary, 2020, p. 30). These findings highlight the importance of understanding parent perspectives of simplified language input, given that their baseline views on input forms like TI and shortened utterances may be somewhat polarized and may therefore require different approaches to introducing/discussing the input strategy with parents.

For parents who have received explicit instruction on how to simplify their language in PMLI's, variable implementation fidelity may be a reflection of the parents' perspectives on

simplified language input (Waddington et al., 2020). Studies that have assessed fidelity in parent-implemented interventions generally demonstrate that parents can learn to implement a given intervention at an acceptable level of fidelity (Waddington et al., 2020). However, the same may not be true for the individual techniques used within each intervention (Ingersoll & Wainer, 2013; Roberts & Kaiser, 2011; Stahmer et al., 2017). As discussed earlier, Waddington and colleagues (2020) sought to evaluate the fidelity of the individual techniques employed within ESDM. One of these techniques included "appropriate language," which involves TI and using language that is only slightly above the child's language level (i.e., the one-up rule). The investigators found that appropriate language was the second least-used technique during intervention, compared to the 17 other techniques that were assessed. The authors revealed that this lack of fidelity in implementing appropriate language was because parents were not shortening their utterances or using TI (Waddington, personal communication with C. Venker, February 6, 2020). Interestingly, appropriate language was also ranked as the least commonly used technique during baseline, indicating that parents were not naturally (pre-intervention) producing TI and hyper-shortened utterances when talking to their child. The relationship between low usage of TI during baseline and corresponding low usage of appropriate language during intervention suggests that parents are less likely to use an intervention technique that feels unnatural to them.

Another study assessed the fidelity for EMT language support strategies, which includes "grammatical expansions" that are only slightly longer than the child's utterance (i.e., the one-up rule; Roberts et al., 2014). Their results differed from Waddington et al.'s (2020) study. Roberts and colleagues (2014) found that these grammatical expansions increased significantly from baseline and were the most "easy" for parents to generalize and maintain after intervention. The

difference in results might be explained by the fact that grammatical expansions were present in all (4 total) of the parents' natural speech at baseline, compared to the parents from Waddington et al. (2020), where three out of the five participants never used TI and the one-up rule during baseline. These results suggest that perhaps the grammatical expansions felt less unnatural to the parents included in Roberts et al. (2014) than those included in Waddington et al. (2020). It should also be noted that the grammatical expansions in EMT did not include the TI of "appropriate language" in ESDM. It is therefore possible that TI may have accounted for some of the low levels of fidelity by parents in Waddington et al. (2020) if TI is less common in natural/baseline parent input than shortened utterances/the one-up rule.

The Current Study

Apart from one survey study and speculative interpretations from the results of parent language input studies, the research into parent perspectives on differing forms of simplified language input (e.g., TI, the one-up rule, grammatically correct utterances) for children with autism is limited. In particular, there is a lack of qualitative studies necessary for generating hypotheses about parent perspectives on simplified language use. More research into parent perspectives on simplified language input is needed because this information can inform clinicians on how they might introduce a language input intervention strategy to a parent, identify/adjust family-centered goals, and increase parent buy-in/implementation fidelity. Increasing parent implementation fidelity is a major contributor towards optimizing an intervention's effectiveness and ultimately improving the client's quality of life through greater language outcomes (Durlak & DuPre, 2008; Stahmer et al., 2017; Stahmer & Gist, 2001). This study seeks to address this research gap between parent perspectives and practice. To our

knowledge no other study has gathered parent perspectives on simplified language input for children with autism through qualitative interviews.

The goal of this study was to characterize the beliefs and attitudes of parents of children with autism regarding various forms of language input and how they talk to their child. Building on previous survey research on parent perspectives of simplified language input (Andary, 2020), this qualitative interview study aimed to provide a rich source of data on parent perspectives regarding what forms of speech feel most natural/unnatural, what parents believe to be the best way to talk to their child to support their language development, and what their reactions are to being told how to speak to their children. We hypothesized that parents of children with autism will vary widely in their beliefs and perspectives surrounding simplified language input and that views may differ on the basis of child language abilities. The current study focused on three research questions:

1) How do parents of children with autism feel about simplified language input?
2) What are parents' reactions to recommendations that they simplify their language when speaking to their child?
3) What do parents of children with autism believe is the best way to speak to their child to support language development?

Methods

Participants

Participant recruitment took place over university list-servs, postings in parent social media groups, newsletters in autism-related university research labs, and flyers in community settings and treatment centers (see Appendix A). Participants completed a screener and background information survey before the primary investigator contacted them (see Appendix B). The background information portion of the survey was only displayed for participants who passed the screening questions. Participants were required to be over the age of 18, report English as the primary language they speak in their home, be the parent of a child with autism who was younger than the age of 6;11 at the time of the interview, and have reliable internet/infrastructure to participate in the virtual interview. One parent did not pass the screener (she did not have a child with autism). Demographic questions and information relevant to the child's autism diagnosis and the parent's experience with interventions were included in the background information portion of the survey. Twenty-two parents completed the screener and background information portion and were contacted via email by the primary investigator to schedule the interview. The current sample included parents who replied to the primary investigator's email.

Participants were 12 parents of children with an existing diagnosis of autism based on parent report. The majority of parents reported that they were white and non-Hispanic, and all were female (see Table 1 for more detailed demographic information on participants). Children were 4;1–6;3 years of age at the time of the interview (M = 4;11, SD = 1;2; see Table 2 for more detailed demographic information on participants' children). Per parent report, six children spoke in full sentences, two children spoke in 1- to 2-word utterances, and four children were

Table 1. Parent Demographics

Demographic variable	**Count (Percentage)**
Gender	
Male	0 (0%)
Female	12 (100%)
Ethnicity	
Hispanic	1 (8.33)
Non-Hispanic	11 (91.67)
Race	
American Indian or Native Alaskan	0 (0)
Asian	0 (0)
Black or African American	0 (0)
Native Hawaiian or Pacific Islander	0 (0)
White	11 (91.67)
Other	1 (8.33)
Parent education	
High school degree or less	1 (8.33)
Some college/specialized training	2 (16.67)
Bachelor's degree	3 (25)
Graduate degree	3 (25)
Doctoral degree	3 (25)

Table 2. Child Demographics

Demographic variable	**Count (Percentage)**
Gender	
Male	10 (83.33)
Female	2 (6.67)
Child language level	
Nonspeaking	4 (33.33)
1-2 word utterances	2 (16.67)
Full sentences	6 (50)
Intervention(s) received	
Speech-language therapy	10 (83.33)
Occupational therapy	8 (66.67)
Applied Behavior Analysis	7 (58.33)
Physical therapy	3 (25)
Other	3 (25)
None	0 (0)
Demographic variable	**Years;Months (Average)**
Age	4;1–6;3 (4;11)

nonspeaking. English was the primary language spoken in each participant's household, and all participants were over the age of 18. Participants received a written consent form (see Appendix C) that was reviewed with them on the day of the interview. Participants provided informed oral consent before beginning the interview. After interviewing, participants received a $30 Amazon gift card via email. This study was determined to be exempt by Michigan State University's Institutional Review Board (IRB) under 45 CFR 46.104(d) 2ii.

Interviews

Open-ended, semi-structured interview questions were developed based on the established methods from Bourque and Fielder (2003) to inform the structure, organization, and display of the interview questions guide. The interview questions guide was further reviewed and modified following 10 pilot interviews with researchers in the lab (4), nonaffiliated adults who are parents of typically developing children (2), and parents of children with autism (4). Interview questions focused on the parent's communication with their child, their child's communication, and their experiences with/reactions to/beliefs surrounding simplified language and language interventions for their child (see Table 3 for an overview of question; see Appendix D for the full interview question script). Visual supports were presented to participants when they were asked to provide example language samples or read utterances off the screen (see Appendix E) In addition to gathering general perspectives on language input, three specific language input strategies were a focus throughout the interview: grammatically complete language input, one-up language input (i.e., 1- 2-words longer than the child's spoken language level), and TI (i.e., simplified, ungrammatical utterances).

Interviews took place over Zoom, a secure teleconferencing application, and lasted approximately one hour. After receiving the participants' informed consent, the interviewer

Table 3. Overview of Interview Questions

Areas of interest	**Relevant interview questions/topics**
Child language background	What is their child's mode of communication?
	What is their child's spoken language level?
	What are examples of things their child has said?
	How much does their child understand them?
Parent language input	What is their own mode of communication?
	What are examples of things they may say or do in hypothetical situations?
	What are their reasons and thought processes for the provided language samples?
	What are the reported differences between talking to their child versus adults?
Received recommendations	What recommendations have they received?
	Have they received any recommendations related to how to talk to their child?
	How did parents react to recommendations?
	What was the impact of these recommendations?
Reactions to single-word, telegraphic, and grammatical recommendations	After reading example utterances for three scenarios, which utterances felt the most beneficial for their child's language development and the most natural/unnatural to say?
	What are parents' reactions to definitions of the three language input strategies?
Beliefs on the best way to talk to their children	What do parents believe is the best way to speak to their child to support their language learning/development?

enabled closed-captioning to generate a transcript of the interview and began the recording. The interviewer asked each question on the interview guide and occasionally asked additional, unscripted follow-up questions in line with the semi-structured format of the interview. Immediately after the interview, the interviewer made a short "memo" for that participant interview to capture impressions, main messages, and key details to aid with organization, coding, and retrieval of information from the transcripts (Glaser & Strauss, 1967).

Recorded interviews and their automated transcripts were uploaded and stored in a secure Teams account. Trained research assistants (RAs) checked and revised the automated transcripts

for accuracy based on grammar, vocabulary, and clarity of reading (e.g., separating text into paragraphs). Transcripts included the participants' and interviewer's speech, as well as relevant and easily observable non-speech communication (e.g., head nods/shakes or thumbs-up gestures when not accompanied by speech) and transcriber comments (e.g., "{The participant left their seat}"). Deidentified and finalized transcripts were uploaded into Dedoose 9.0.86, a software program that allows media files to be shared, coded, and analyzed.

Code Development and Interview Coding

Interviews were analyzed by identifying the themes, common ideas, relationships, and shared experiences between interviews, which made up the codes of the current study. Codes were developed using the constant comparative method within grounded theory (Glaser & Strauss, 1967). As the name suggests, this method of code development requires researchers to regularly compare interviews and interview transcripts to continually generate, combine, and eliminate codes throughout the interviewing process. Coding followed a modified version of the levels described in grounded theory: open coding, axial coding, and selective coding (Strauss & Corbin, 1998). Open coding is the wholly inductive ("bottom-up") process of finding reoccurring events or ideas in the data and labeling that event or idea under a given code. Axial coding involves interpreting commonalities between open codes, and therefore begins to take a more deductive ("top-down") approach. Axial coding creates clusters of open codes that pivot around a central idea, or axis. The final level of coding is selective coding. This level can be thought of as the thematic level of coding. Selective coding takes the axial code clusters and attempts to define how they relate to one another. From these relationships, investigators see what stories they tell and what themes and theories might grow from them. The current study modified this approach by developing some open codes that stood alone and were never grouped to form axial

codes before the final level of analysis. Additionally, the current study used the research questions to organize and guide data analysis during the final level of analysis in a research design approach (i.e., the coding process included more deductive components than strict grounded theory data analysis; Hennink et al., 2020).

Following guidelines for data saturation in qualitative research among relatively homogenous study populations (e.g., parents of young children with autism) that suggest that saturation can be achieved in 9–17 interviews (Hennink & Kaiser, 2021), the primary investigator and two trained research assistants individually reviewed nine of the same interview transcripts to make note of common phrases, themes, words, and statements as possible codes (i.e., open coding; Hennink & Kaiser, 2021). To reduce researcher bias, coders possessed differing levels of knowledge concerning the study's background as well as previous involvement in the study (e.g., study development, interview question development, transcribing; Olson et al., 2016). The research team met at least twice a month to discuss possible codes, outline how they might relate to one another (i.e., axial coding), decide whether to revise previous codes, and reach consensus on which codes to include and how to define them (Harry et al., 2005; Willms et al., 1990). Codes that resulted from these discussions were organized into a coding manual (see Table 4 for the list of primary codes; see Appendix F for the list of primary codes and their subcodes). The coding manual was continually edited to reflect new or revised codes as interviews were reviewed and discussed by the research team (Glonti & Hren, 2018; Olson et al., 2016). Each code was identified by a definition, with some also including a representative quotation, instructions on when to/when to not double-code with another code, and contrastive features that differentiated a code from similar codes. The research team continued to meet at least twice a month to discuss new potential codes and code clusters and

Table 4. Primary Codes

Code Name	Description
Child vs. adult language input	Responses to the question, "How does the way you speak to XXX compare to how you speak with adults?"
Changing language input	Used when parents indicated that the length or complexity of their speech has changed over time.
Example language input	Used when parents gave a hypothetical language sample of what they might say to their child in a specified situation.
Clarifying x Unrelated to grammar/length	Used when parents identify a way they would clarify information for their child that does not relate to grammar/length.
Reported reason for language input	Used when parents gave a reason or explanation for the language input/style of speech they use.
Recommendations they've received	Used when parents reported a recommendation that they have received in the past.
Who gives the recommendation	Used when parent says identified a source of any given recommendation.
Reactions to recommendation	Used when the parent shared what their reaction was to a recommendation.
Impact of recommendation	Used when parents shared how a recommendation they received impacted them, their life, their communication, their relationships, etc.
Changing perspective of recommendation	Used when parents indicated that they originally had one opinion on a recommendation they received, but that their opinion about that recommendation changed over time.
Reaction to reading simplified utterances	Parent reactions to the one-word, telegraphic, and grammatically complete utterances they read aloud.
Reaction to strategies x Definitions	Parent reactions to definitions of language input strategies.
Do children understand more than they say?	Parent responses to the question, "Do children understand more than they say?"
Best way to speak to child	Parent response to the question, "What do you believe is the best way to speak to your child to support their language development?"
Personal concern with speech	Used when parent indicated uncertainty around their speech and how they should be talking to their child.
Influence of expressive language concerns on language input	Used when parents expressed that they want their child to be able to communicate expressively (in a given mode, at a certain language level, etc.).
Influence of receptive language concerns on language input	Used when parents reported that they want their child to understand what they are saying.
Negative connotations	Used when parents expressed negative feelings towards certain types of speech.

update the coding manual at the open coding and axial coding levels. This process of reviewing transcripts, comparing possible codes, and reaching consensus continued until data saturation was achieved: the research team reached consensus on codes and decided that no more codes could be generated or combined without losing information relevant to the study's research questions. Following guidelines for data saturation (Hennink & Kaiser, 2021), transcripts were not coded until data saturation was reached and the coding manual was finalized.

To maximize coding consistency across transcripts, the primary investigator coded all transcripts (Harris & Burke, 2011; Olson et al., 2016). The two research assistants reached a minimum of 70% reliability on three code application tests via Dedoose, which included excerpts from three transcripts coded by the primary investigator (Douglas et al., 2020; Pickard et al., 2016). Each test included excerpts from one of the three coded transcripts. The coded excerpts ranged from two words to multiple pages in length. Overall interrater reliability (as measured by averaging the pooled Cohen's kappa from reliability tests) was 83% (SD = .07), indicating very good/excellent reliability (Cicchetti, 1994; Landis & Koch, 1977). After achieving good reliability, the research assistants were assigned coded transcripts to check for accuracy and to ensure consistency in code application that aligned with the coding manual. The research team met to discuss revisions made to the coded transcripts and to reach consensus on any changes (Douglas et al., 2020). The final level of analysis considered the relationship between child language level and parent responses, the frequency of code applications, code co-occurrence, and relationships between codes within the framework of the research questions so that the main themes or "stories" of the data were revealed (i.e., selective coding).

Results

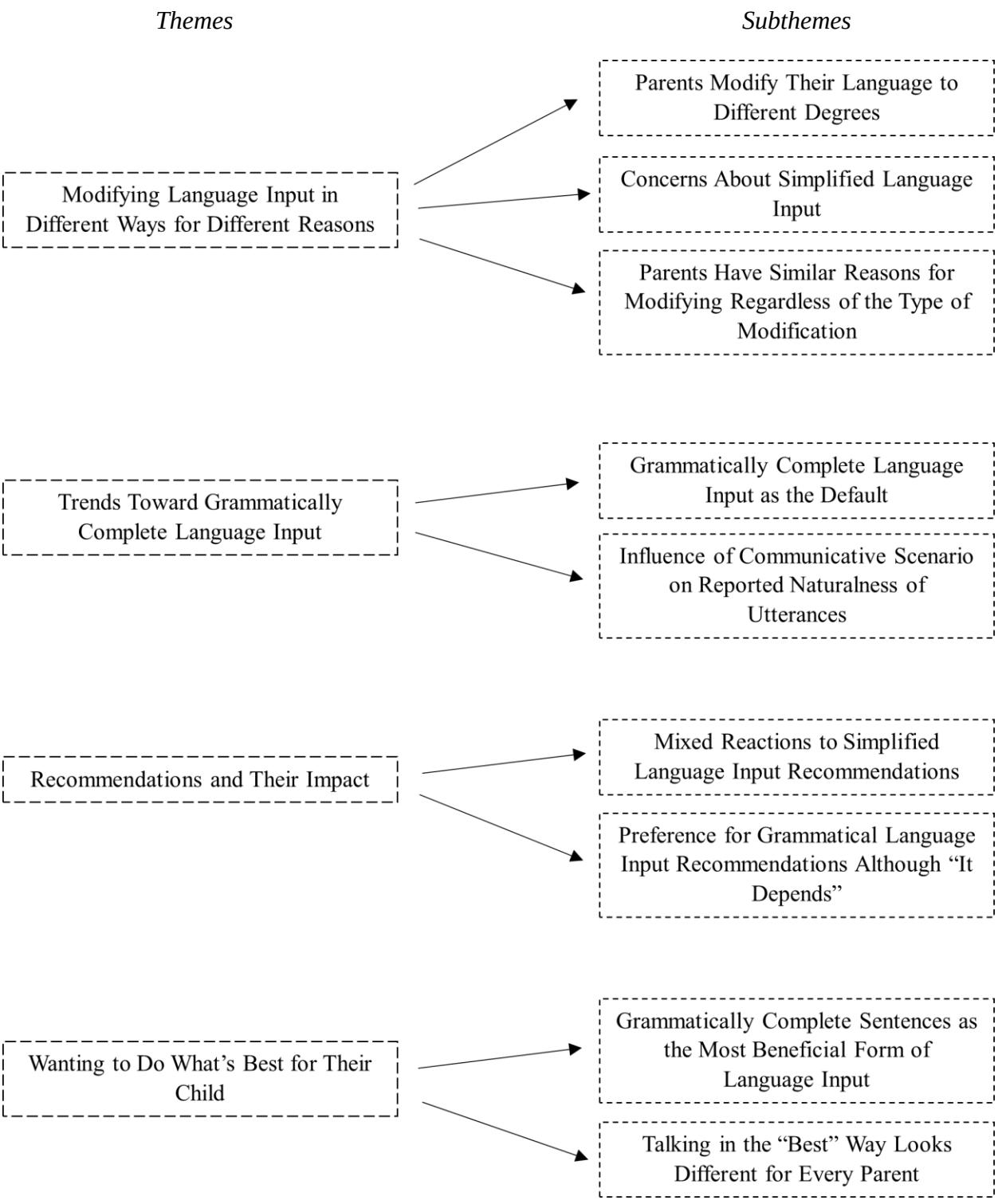
Analysis of the interview transcripts revealed four themes concerning parent perspectives on simplified language input for children with autism: Modifying Language Input in Different Ways for Different Reasons; Trends Toward Grammatically Complete Language Input; Recommendations and Their Impact; and Wanting to Do What's Best for Their Child. See Figure 1 for subthemes.

Modifying Language Input in Different Ways for Different Reasons

Parents Modify Their Language to Different Degrees

All parents reported modifying their language in some way when they talk to their child with autism compared to when they speak to adults. Modifications varied greatly, although there were some trends: most parents reported making their vocabulary simpler, and several reported using shorter sentences (two of whom explicitly mentioned limiting utterances to 1- to 2-words more than their child's spoken language level, as would be recommended in the one-up rule). Although utterance length and grammatical complexity are related, shorter sentences do not necessarily result in utterances that are simplified to the point of being ungrammatical. Only one parent explicitly mentioned changing her language in a way that was related to changing the structure of her utterances from grammatical to ungrammatical: "I try to just get right to the point with him…I do leave out some words… Instead of saying like, 'change your clothes,' it might just be 'change clothes'" (Parent L). Parents reported making many other modifications when speaking to their child, including changing their tone of voice, slowing their rate of speech, prompting for more responses from their child, regularly checking for comprehension, focusing on the child's emotions, providing more explanations/contextual information, etc. However, five parents shared that they try to speak to their child the same way they would speak to an adult

Figure 1: Themes and Subthemes



(allowing for some content/vocabulary modifications), which was captured by one parent who reported, “We don't try to change our language too much when we speak with him… in terms of sentences and words, I don't change that too much, really” (Parent I).

Concerns About Simplified Language Input

In addition to several parents reporting that they modify their language input very little, almost half of the participants expressed or implied negative views about extensively simplified speech (e.g., speaking in 1- to 2-word utterances or producing ungrammatical utterances), mostly from parents of children speaking in full sentences, but others from parents of children who were nonspeaking or speaking in 1- to 2-word utterances. Several of these parents reported that they try to avoid “baby talking” to their child to support their language development, as in the case of one parent who explained,

> “I was never big on the baby talking… it was always about talking to her like she was a little adult human as opposed to a little person like a child, a baby, because you want them to develop those language skills, and you want to bring them up. You don't want to come down to them unless you have to. I feel like that's what I try to do with him… bring him up as opposed to always coming down to him” (Parent H).

Other parents raised concerns that using ungrammatical speech like TI with children is condescending and may negatively impact their child’s language development, with one parent sharing that she stopped using TI because,

> “At a certain point, it feels like a little condescending to talk to a kid like that [in telegraphic utterances]… when you're modeling phrases for a kid—or how to speak certain phrases, I feel like that kind of sets them up to learn them a little differently” (Parent B).

On the other hand, one parent of a child who was nonspeaking expressed negative views toward longer, more grammatically complete utterances, referencing concerns about comprehension:

> "You can't get too wordy, because then he gets confused. So when I speak to him, I will say like, 'pants on' or 'let's go' or 'go to your room,' you know, just very short—not like 'hey [child], do you want to go to your room and hang out?' Like no, no, no, it's too much. He doesn't understand it… it's very, very simple" (Parent C).

Parents Have Similar Reasons for Modifying Regardless of the Type of Modification

Parents provided many reasons for why they modify (or do not modify) their language when talking to their child. These included increasing/holding their child's engagement or attention, clarifying or explaining information, giving directions, addressing the child's emotions (including changes to the parent's language input as a result of the child's emotional state, or when discussing emotions with their child), supporting language learning, engaging in play, asking questions, modeling language for their child to repeat back, teaching information, and improving the child's comprehension. Increasing the length and complexity of their speech as their child's language developed was a common trend among parents whose children spoke in full sentences or 1- to 2-word utterances. None of the parents of children who were nonspeaking reported changing their language input as a result of their child's language developing. One parent explained that she changed her language input over time to support her child's language learning:

> "When he first was diagnosed and before he started making some progress... everything was at his level, and it still is. So, there was a time when everything was 2-word sentences or you know, like '[child] this, [child] that' but he has progressed. So, I think

I'm actually speaking to him at his level right now, and also he needs to be brought up to the next level." (Parent H).

Many different reasons were provided for grammatically complete language input (each of the reasons listed in the previous paragraph were provided at least one time between all 12 interviews). Almost every parent reported using grammatical language input to clarify or explain, as well as when they play with their child. A common trend among parents was also being concerned about supporting their child's language development. For example, when one parent was asked what was behind her motivation to use language that was more similar to adult-like communication, she explained "I'm trying to get him to imitate… more adult-like speech" (Parent D). However, other parents reported using grammatical language input for reasons other than supporting language development: when another parent was asked to elaborate on her report of using grammatical language input rather than more ungrammatical language (i.e., TI) during play, the parent explained that play is "more casual… It's not like it's important if he understands" (Parent C). Said another way, this parent uses TI to increase comprehension when she wants her child to comply, as in the case of giving directions.

Fewer different reasons were provided by parents who shortened their utterances to 1- to 2-words (i.e., the one-up rule) or TI when speaking to their child, although there were many responses that mirrored reasons for providing grammatical language input. Giving directions, increasing attention or engagement, clarifying information, improving comprehension, and supporting language learning were the most frequently mentioned reasons for the parents who used one-up language input. No parent described one-up language input as a strategy they use to teach their child something. TI was most frequently reported as being used to give directions, increase comprehension, and clarify or explain; play was never mentioned as a reason for using

TI, compared to almost every parent mentioning play as a reason for using grammatically complete language input. One parent explained her reasoning as it related to comprehension:

> "I'm not 100% sure how much he's understanding when I'm talking, so I figure if I label things or make them simple, like maybe he's taking in just the necessary information, if that makes sense. Like, um, the verbs and nouns… I guess I just want to give him the essential information of a sentence" (Parent L).

Trends Toward Grammatically Complete Language Input

Grammatically Complete Language Input as the Default

When asked to provide an example of what they might say to their child in certain communicative scenarios, most samples—by a large margin—were grammatically complete utterances (grammatical language samples were coded 592 times compared to 20 TI sample codes). For example, in a hypothetical scenario where the parent was playing with her child, Parent G commented, "We got to see where all these different animals lived at the zoo." All parents gave grammatical language input samples during their interview in most of the presented communicative scenarios. The only communicative scenarios where some parents (all of whom were parents of children who were nonspeaking) did not give a grammatical sample were when they were asked to clarify information or model language to encourage their child to repeat it back. In these cases, parents did not provide any language samples, grammatical or otherwise. Instead of providing a language sample to clarify, most parents of children who were nonspeaking described things that they would do to clarify (e.g., get on the child's level, point to things, engage the child, repeat what they had said, etc.). Most parents of children who were nonspeaking also did not provide a language sample when they were asked what language they might model to encourage their child to repeat it back. Parents explained that they simply would

not model language for their child to repeat because their child is nonspeaking. Compared to other communication contexts, grammatical language samples appeared most frequently when parents were commenting, giving directions, talking during play, and asking their child questions. Compared to other communication contexts, grammatical language samples were provided the least frequently to model language (although the interview only included one explicit opportunity for the parents to provide a language sample in the "model language" communicative scenario).

Parents provided telegraphic language samples infrequently and in fewer scenarios than grammatical language samples. They provided telegraphic samples only for giving directions and commenting (not for playing, clarifying, asking a question, increasing/holding their child's engagement or attention, addressing the child's emotions, supporting language learning, asking questions, modeling language for their child to repeat back, teaching information, or improving the child's comprehension). Almost all TI samples were for giving directions (e.g., "go put shoes" [Parent A]). Even though telegraphic language samples were not common in most interviews, TI still appeared at least one time in more than half of the parents' language samples, including parents of children who were nonspeaking, who spoke in 1- to 2-word utterances, and who spoke in full sentences. However, the parents of children who were not yet speaking in full sentences accounted for almost all telegraphic language samples; one parent of a child who was speaking in full sentences gave telegraphic language samples on two occasions.

Influence of Communicative Scenario on Reported Naturalness of Utterances

When participants were asked to read utterances at differing levels of complexity (a single word, telegraphic utterance, and grammatically complete sentence) for three communicative scenarios (making a comment, asking a question, giving a direction), parents

generally identified the grammatically complete sentence as feeling the most natural for each communication scenario. Parents gave a variety of explanations for why the grammatical language input felt the most natural to them. One parent's response represents multiple reasons: "the other ones are just, like, not even like asking a question. I mean, 'want car' but it's not– that's not how I would want him to talk" (Parent F). In this response and in others, parents reported that the grammatical utterances were unambiguous and represented the language they wanted to model for their child. Other reasons for using grammatically complete language input were related to effectively getting their child's attention, speaking at a level they know their child can understand, or simply saying what felt "the most correct" (Parent J).

Even though most parents generally identified the grammatical utterances as feeling the most natural, parents' preference for what felt most natural varied based on the communicative scenario for several parents. Two of these parents rated the grammatically complete utterance as feeling the most natural when making a comment or asking a question, while also rating the telegraphic utterance as feeling the most natural when giving a direction. Another parent identified the telegraphic utterance as feeling the most natural only when making a comment. None of the parents rated the telegraphic utterance as feeling the most natural when asking a question. Parent explanations for why a telegraphic utterance felt more natural than the other utterances were related to being more direct and eliminating "unnecessary" words (e.g., "I don't think we need 'the' in there for it to be effective" [Parent C] and "Because there's just two words. Straight to the point" [Parent E]).

The single-word utterance was occasionally rated as feeling the most natural by three parents. Two of these parents only rated the single-word utterance as feeling the most natural when making a comment; they rated the grammatically complete utterances as the most natural

when asking a question or giving a direction. The third parent rated the single-word utterance as feeling the most natural for commenting and asking a question, while the telegraphic utterance felt the most natural when giving a direction. None of the parents rated the single-word utterance as feeling the most natural when giving a direction. When asked to elaborate on why the single-word utterance felt the most natural, some parents explained that it was related to getting their child's attention or supporting their spoken language skills, as in the case of one parent who said,

> "[I'm] trying to reinforce what—what it is; just label the item so maybe he'll just start saying 'car,' because I know he's definitely capable of saying it, like he's made those sounds but hasn't like put the word together" (Parent L).

Whereas the grammatically complete utterances were generally rated as feeling the most natural, the telegraphic utterances were generally rated as feeling the most unnatural. All but one parent rated the telegraphic utterance as feeling the most unnatural at least one time. When asked why the telegraphic utterance felt the most unnatural, many parents explained that they would simply never talk that way because it's "not proper" (Parent I), that it "sounds weird" (Parent G), or that it "just doesn't feel right" (Parent J). Several parents who rated the grammatical utterances as feeling the most natural emphasized how unnatural the telegraphic utterances felt compared to the other extensively simplified utterances (i.e., the single-word utterances). This was the case for one parent who explained, "'Car' at least like I—you know, people say the one word… but like 'want car,' kind of just sounds like somebody who's starting to piece English together" (Parent G). However, similar to the utterances that felt the most natural, parent opinions on what felt the most unnatural varied by communicative scenario for some. A grammatically complete sentence was only reported as feeling the most unnatural by one parent during the "question" communicative scenario because "it's the longest… I just try to keep it

simple with [child]" (Parent L). A single-word utterance was rated as the most unnatural several times across the communicative scenarios by eight parents who did not cite specific concerns or argued that the utterance was too ambiguous, as one parent explained, "It just seems like it could be taken more, I don't know, more than one way" (Parent C).

Recommendations and Their Impact

Mixed Reactions to Simplified Language Input Recommendations

Parents received many different recommendations from a wide range of sources. Most parents reported receiving at least one type of language-related recommendation from professionals, including pediatricians, occupational therapists (OTs), behavior analysts, SLPs, and unspecified clinicians who worked in EI. The internet was also a common source of recommendations. A minority of recommendations came from books and independent research. However, many language-related strategies were not picked up from explicit recommendations at all. Instead, several parents started using a language-related strategy after observing a clinician implement it. For example, one parent who reported using shorter, occasionally ungrammatical utterances shared,

> "I picked all that up from therapists. Because it works, you know… I don't think they recommended it. They just spoke to him that way, and I was like 'oh look, he's doing the thing.' Okay, I'll talk to him that way too'" (Parent C).

Seven parents reported receiving recommendations related to utterance length and grammar during interviews. Only two parents reported receiving recommendations to speak in full-length grammatical utterances, and the recommendations never came from professionals/clinicians (they came from family members or independent research instead). Both parents reported that they thought the recommendation was helpful. One of them shared that,

initially, she was not sure that she agreed with the recommendation, but her opinion changed when speaking in full sentences appeared to be effective for another child in their family:

> "I definitely would, like, baby talk with him when he was little, but my husband, he has a daughter… and he always did that [spoke in full-length, grammatically complete sentences] with her. And like she has, like, the most, like, the craziest vocabulary… he never baby talked to her or anything like that, and so, you know, I certainly did baby talk when he [child] was a baby and little, but then I did try to kind of transition…. It seemed to work. [My husband has] done it and it seemed to work, so I went along" (Parent D).

Two parents reported receiving explicit recommendations to use TI, both from an SLP. Two other parents reported that although they were never explicitly told to speak in telegraphic utterances, they adopted this form of language input from observing clinicians (including an ABA, OT, teacher, and SLP). Half of the parents who received recommendations to use TI or started using TI after observing a clinician use it reported that they believed the recommendation was helpful and that the recommendation made communication with their child easier. One of them also mentioned that she believed the recommendation had a positive impact on her child's language development. The other two parents expressed a mix of negative reactions to the telegraphic recommendations, with one parent reporting that she tried using TI then stopped because she thought it was unhelpful, uncomfortable, and more effortful to use. While reflecting on why she stopped using TI, she explained:

> "I'm a wordy person and a talker, and so that's always been hard for me. …He's always seemed to be okay with more than two words… but like I think there was probably a time where I would have to be like, '[child] bath'.... I don't know that he wouldn't understand 'XXX are you ready to take a bath?' because all we did was 'XXX bath'" (Parent H).

The other parent shared that she would use the telegraphic recommendation because a clinician told her to, even though it was a change from what she was doing naturally (i.e., speaking in full sentences) and it made communication with her child more effortful, as reported in this conversation:

> Interviewer: "What was your reaction to hearing this type of recommendation [TI]?"
>
> Parent A: "I think as a parent you just do whatever you have to. Yeah, I don't think we gave much thought... You would think more language is better, but for someone who doesn't understand, I think you have to [use shorter] utterances."
>
> Interviewer: "…did it feel different from how you used to talk to [your child], like more mental effort or anything like that?"
>
> Parent A: "Yeah, of course, because… I mean, you really need to be mindful of how many words you're saying, or what you're saying" (Parent A).

Three parents reported receiving recommendations to use the one-up rule from SLPs, from behavior analysts, or from observing how behavior analysts spoke to their child. Two parents reported that they believed the recommendation was helpful, made communication with their child easier, and that the recommendation likely had a positive impact on their child's language. One of these parents shared that although she felt the one-up recommendation was helpful, it took some adapting to regularly use the recommendation in her everyday language. The third parent reported that she tried to use the recommendation but then stopped because she found it to be unhelpful, uncomfortable, and more effortful than how she normally talked to her child. In her own words, she explained,

> "I was told by his speech therapist very much, like, two words—less is better... He's not going to understand if you're saying long sentences to him, and I really did try, just, that's

just not how we talk. And I don't want to talk to him like he's not a human or like he's some idiot, like I'm not doing that. If I don't have expectations for him, he won't live up to anything" (Parent H).

The majority of recommendations parents shared were unrelated to utterance length and/or grammar. Between all parents, participants shared 28 recommendations that were unrelated to length/grammar (e.g., using lots of language, parallel and self-talk, tone of voice, using social stories, using more comments than questions, modeling speech sounds/articulator placements, etc.) from reading books, seeing recommendations on the internet, receiving them from clinicians (e.g., SLPs, OTs, etc.), doing research, and/or adopting language input strategies they observed clinicians use. Most recommendations came from SLPs and from observing and adopting strategies from clinicians (including SLPs and behavior analysts). Reactions to these miscellaneous recommendations were mostly positive; parents frequently reported that they thought the recommendation was helpful, made communication with their child easier, had a positive impact on their child's communication, and/or that they use (or used) the recommendation.

In addition to the positive reactions, however, there were also many reports of negative reactions to the recommendations that were unrelated to utterance length and/or grammar. Parents reported that some recommendations they have received were unhelpful, were intimidating/overwhelming, required change/adapting, or made communication uncomfortable or more effortful. One parent said that she would do whatever she was instructed to do if a clinician thought it would help her child. Similar to the parent who mentioned implementing a TI recommendation even though it made communication more effortful, another parent reported that she continued to use a recommendation even though it made communication with her child

more uncomfortable. Several parents reported that they were intimidated or overwhelmed by recommendations in general (the type of recommendation that resulted in feelings of intimidation were unspecified). For example, one parent explained,

> "It's like, here's some other things that he can do… Here's some apps you can download. Here are all these other avenues, and all these other sources out there, and I feel like if it's just like all this—something just really broad like that… I don't even look into it" (Parent E).

Preference for Grammatical Language Input Recommendations Although "It Depends"

When three different language input strategies were described (i.e., the one-up rule, telegraphic speech, and full-length, grammatical sentences), parents expressed a wide range of opinions on the relative effectiveness of each language input strategy. All but one parent reported that they agreed with using grammatically complete sentences as a language input strategy for a variety of reasons. Supporting language development was the most frequently cited reason, as was the case for one parent who explained,

> "Sometimes we would stress a word or two to make a couple of words stand out, but I think she understands the statements, and I think it will be better long term for her to develop like the grammar knowledge of language" (Parent J).

Other parents shared that they agreed with the grammatical strategy because it sounds right: "It makes sense to me because that's how people speak. And so it just, simply I guess, makes sense" (Parent I). However, two parents shared that although they agreed with grammatical input as a language strategy, its effectiveness may depend on the child or the situation. For example, one parent stated, "I guess it is good to talk to a kid that way and not talk to them in a childish way, but I guess—I don't know, I feel like that—it's better for kids… that have more understanding"

(Parent L). Another parent did not express leanings one way or another toward grammatically complete language input and reported that she believes its effectiveness as a strategy will differ based on the child's language level, explaining,

> "I think that if you are, like, a neurotypical person or perhaps have excellent language skills, then yeah you should, you know. If you can process that and understand it, then I think that's a wonderful way to go, you know. But if it's too much, then it's not doing anyone any good" (Parent C).

Half of the parents agreed with the one-up rule as a language input strategy after hearing it described, with most parents explaining that they saw it as a way to help children build on their language skills (e.g., "It's got a word that he understands and a new word that he needs to start understanding" [Parent E] and "I like it. It's like a little guidance for what's the next step" [Parent G]). Again, however, one parent of a child who was nonspeaking reported that although she agrees with the strategy, its usefulness is dependent on the child, explaining,

> "I don't like it personally… But I think it all depends on the appropriateness for the level of the child, just because some people, some kids can't say more than one word at a time doesn't mean they don't understand more than one word at a time… there was a time where it was appropriate for [child], it's just not now" (Parent H).

Two other parents disagreed with the one-up rule, echoing concerns from the parent who was not sure she agreed:

> "I don't like it, and I think a lot of that is because I do think she understood us before she was able to communicate back, and when she did start communicating back, it was a, I think, a very fast progression because she was used to us like being, you know, saying more than two words at a time" (Parent J).

The final four parents reported that the effectiveness of the one-up rule would differ for each family/child.

Four parents (all of whom had children who were nonspeaking or spoke in 1- to 2-word utterances) agreed with TI as a language input strategy. These parents cited reasons related to supporting their child's comprehension, with one stating,

> "I would never go to like regular people like that but if, you know, if a kid like [child] has challenges understanding and processing more words than less, then absolutely we're just going to make it as simple as possible" (Parent C).

Two of the parents who agreed with TI reported that although they agree with the strategy, it likely depends on the child; two parents of children who were nonspeaking were the only parents who fully agreed with the TI strategy. One parent of a child who spoke in full sentences did not have a leaning either way and said that its usefulness as a strategy would depend. Most parents (seven) disagreed with the TI strategy, and the majority of these parents had children who were speaking in full sentences. One parent worried that it would be confusing to their child to hear ungrammatical utterances when most people speak in grammatical utterances:

> "I am not a fan… that's not how people talk. The world is not going to communicate with kids in that level… You have to prepare your child for the world, not the world for your child. That's never going to work, and you know there's never going to be a person in the grocery store that looks at my son and says, '[child] happy?'… like no like they're going to say 'Hi, how are you?' and, hopefully, he can say 'Hi' at least, you know, but I just don't see that as being beneficial" (Parent H).

Other parents reported suspecting that TI would not support their child's language development. One parent who reported previously using TI explained,

> "As time has gone on, I feel like I kind of reject that a little bit more… at a certain point, it feels, like, a little condescending to talk to a kid like that just in how it feels. And once again like when you're modeling phrases for kids– or how to speak certain phrases, I feel like that kind of sets them up to learn them a little differently" (Parent B).

Two of the parents of children speaking in full sentences said that although they disagreed with TI, it likely depended on the child or family.

Wanting to Do What's Best for Their Child

Grammatically Complete Sentences as the Most Beneficial Form of Language Input

When participants were asked to read and react to single-word, telegraphic, and grammatically complete utterances for different communicative scenarios, they were also asked to identify which utterance they felt had the greatest benefit for their child's language learning. The grammatical utterance was identified as having the greatest benefit across almost all utterances for the different communicative scenarios; all parents identified the grammatical utterance as having the greatest language benefit at least once, citing reasons related to building language skills, being unambiguous, and modeling appropriate language. For example, one parent explained,

> "There's more words [in the grammatical utterance], like even if he didn't understand all the words right away… those are words that even though he's not saying them yet, he understands them. He knows them when I say it. So the more I keep using more verbiage that he does know, but he doesn't use yet, it's more examples… for him to learn to start using" (Parent E).

Other parents shared that they believed the grammatical utterance is more representative of natural speech. For example, when asked to read the "question" utterances and describe which

utterance had the greatest benefit for language development, on parent responded, “Well, the full sentence, because that's how we interact. And so, you know, putting all of the words together is the clearest way to get your meaning across” (Parent G). For the most part, parents who rated the grammatical utterances as having the greatest benefit also rated the grammatical utterance as feeling the most natural to say. However, on several occasions, parents identified a single-word or telegraphic utterance as feeling the most natural but identified the grammatical utterance for that communicative scenario as having the greatest benefit for their child’s language development.

In comparison to the grammatical utterances, the more extensively simplified utterances were not rated as being the most beneficial for language development as frequently. The single-word utterance was identified as having the greatest benefit on two occasions, when parents reported that saying the single-word utterance may encourage their child to talk more to add information or that it would draw their child’s attention more effectively than the other two utterances. Telegraphic utterances were rated as the most beneficial for language development several times across the different communicative scenarios by parents of children who were nonspeaking. These parents reasoned that the telegraphic utterance communicated the target meaning without having too many words. As one parent explained, “it has the essential items; the verb and the noun” (Parent L). Additionally, a parent of a child who was nonspeaking identified the telegraphic utterance (“Want car?”) as the utterance with the greatest benefit for her child’s language development even though the single-word utterance (“Car?”) felt the most natural to this parent. She expanded on her response to suggest that the telegraphic utterance might help her child learn the verb better than the single-word utterance:

> "Maybe it would be better to say, 'Want car?'… Maybe just so he knows like 'want'—like how to express 'want' instead of just grabbing or crying. Like I said, I'm not 100% sure if he knows that verb, but I would like him to know it" (Parent L).

Talking in the "Best" Way Looks Different for Every Parent

When asked to share what they believe is the best way to speak to their child to support their language development, parents offered many different responses. Almost half of the parents gave a response that was related to length (e.g., shorter or more similar to the length of typical adult speech) or using grammatically complete utterances. Two parents gave responses that were related to vocabulary (i.e., using simpler vocabulary or explaining new words). Several parents gave other responses related to emotion (i.e., reading emotions or expressing love), content (i.e., asking lots of questions), quantity (i.e., speaking a lot), or were unspecified (e.g., speaking to their child like they would any other child). For example, one parent explained, "What we're doing now is trying to talk to her the way… we would any neurotypical kindergartener, because we want her to be able to fit in well with that environment in school" (Parent J).

Half of the parents in the current participant group expressed uncertainty about whether the way they speak to their child is the "correct" way to speak to them, which was succinctly expressed in one parent's statement that, "I always just try to talk to him the way I think he could best understand. And I don't always know what that is" (Parent H). However, when asked, all parents reported that their child understands more than they say, in no uncertain terms: "100 percent agree" (Parent K, Parent A); "Absolutely, 100 percent" (Parent H); "Absolutely" (Parent J); "Oh, strongly agree" (Parent G); "I very much agree" (Parent B).

Discussion

Understanding client and caregiver perspectives is one of the three key components of evidence-based practice (ASHA, n.d.). Understanding these perspectives is particularly important when certain strategies do not have strong empirical evidence to support their use, as is the case for extensively simplified language input (e.g., TI; Bang et al., 2020; Eisenberg, 2015; Sandbank & Yoder, 2016; Van Horne, 2020; van Kleeck et al., 2010; Venker et al., 2015, 2019, 2020). The current study sought to understand parents' perspectives regarding simplified language input for children with autism. More specifically, the current study asked: 1) how do parents of children with autism feel about simplified language, 2) what are parents' reactions to recommendations that they simplify their language when speaking to their child, and 3) what do parents of children with autism believe is the best way to speak to their child to support language development? Qualitative analysis of 12 semi-structured parent interviews resulted in four major themes: Modifying Language Input in Different Ways for Different Reasons; Trends Toward Grammatically Complete Language Input; Recommendations and Their Impact; and Wanting to Do What's Best for Their Child. Results indicate that parents hold a wide range of perspectives and attitudes about simplified language input that are influenced by what they want to achieve with their language input, the recommendations they have received, and what feels most natural to them. However, in terms of use, feelings of naturalness, general reactions to, and beliefs about the most beneficial forms of language input, the current results suggest that parents feel more favorable toward grammatically complete utterances compared to ungrammatical utterances.

Parents Modify Their Language Input in Different Ways for Different Reasons. This theme developed based on responses to interview questions that asked parents to describe how they modify their language when talking to their child with autism compared to when they speak

to other adults. Parent responses revealed that participants all modified their language in some way, to different degrees. Making utterances shorter and using simpler vocabulary were among the most commonly reported modifications. However, several parents reported that they try to modify their language as little as possible. These results suggest that parents do think about the way they speak to their children, with some parents simplifying their language input more than others. The high frequency of reports of using simpler sentences and vocabulary suggests that parents may be relatively open to recommendations related to simplifying vocabulary or utterance length. Naturally using shorter utterances when talking to their children was also a common trait in a study by Roberts et al. (2014), which looked at implementation fidelity of EMT strategies. Every parent in their study used one-up input at baseline, and it appeared that these "grammatical expansions" were among the most easily adopted strategies.

Compared to reported modifications in vocabulary and utterance length, simplifying the grammatical structure of utterances was rarely mentioned. Even when parents reported simplifying their language in a way that modifies the structure of their utterances (e.g., utterance length), they almost never reported simplifying to the point of violating grammatical rules (e.g., "leaving out words" in favor of only content words, as in the case of TI). These results suggest that TI/ungrammatical simplifications may not feel as natural as other strategies such as simplifying vocabulary/utterance length. Like Roberts et al. (2014), Waddington and colleagues (2020) assessed implementation fidelity of language strategies (i.e., "appropriate language") pre-intervention, this time for ESDM. Their results suggest that it feels relatively unnatural for parents to extensively simplify their language, possibly because "appropriate language" in their study involved TI instead of just the one-up input specified by the Roberts et al. (2014) study. Simplifying utterances to the point that they are ungrammatical may feel uncomfortable to an

even higher degree for the parents who purposefully speak to their children in utterances that are similar in structure to that of adult communication.

The implication that parents may feel more uncomfortable with TI than other simplification strategies was mirrored in comments from parents who expressed negative connotations toward more heavily simplified speech (e.g., “baby talk”). Parents mentioned concerns that this type of language input (including hyper-shortened utterances and ungrammatical language input) would be teaching their children incorrect or “unproper” language. Parents also worried that using more heavily simplified speech would be condescending toward their child, with one parent alluding that this form of language input is dehumanizing. These results indicate that some parents may strongly disagree with certain types of language input strategies (e.g., heavily simplified input), compared to other strategies where their baseline feelings are neutral.

Parents gave many reasons for why they speak to their children in certain ways, ranging from supporting their child’s language learning to helping their child self-regulate and learn about emotions. Regardless of the type of language input, supporting their child’s comprehension, engagement, and overall language learning were frequently cited as motivators for making (or not making) modifications to their language input when speaking to their child. These results suggest that many parents are concerned about supporting their child’s communication development when they decide to speak in a certain way. Similarly, in the survey study on parent perspectives and influences on language input by Andary (2020), researchers found that child receptive language and child expressive language were the two most important factors parents consider when they decide how to speak to their children.

Reported reasons for one-up input and TI were similar to those given for grammatically complete language input, but there were some differences. Most parents reported using grammatical language input during play, whereas giving directions and improving comprehension were among the most commonly cited reasons for TI and one-up input. (Only two parents reported using one-up language input for play, and no parent reported using TI while playing with their child). Again, supporting communication (in this case comprehension) appears to be a common concern among parents, but these results suggest that parents who simplify the length and grammatical structure of their language may simplify more frequently in situations when they want their child to comply with a request, compared to communicative situations that are more "casual" (e.g., during play).

Trends Toward Grammatically Complete Language Input. In addition to asking parents to report how their language input changes when they speak to their child versus when they speak to an adult, parents were asked to provide language samples for what they would say to their child in example situations. The vast majority of language samples provided by every parent in almost every communication situation were grammatically complete utterances. Telegraphic language samples were very rare by comparison, appearing almost exclusively when parents were giving directions and only among parents of children who were not yet speaking in full sentences. These findings align with findings from Waddington and colleagues (2020), which demonstrated that most of their participants never used TI at baseline. These results suggest that grammatical language input may come more naturally to parents than TI, regardless of their child's spoken language level. The fact that parents of children who were speaking in full sentences never used TI also suggests that if parents use ungrammatical language at all, it will

likely only be when speaking to children who are nonspeaking or who speak in 1- to 2-word utterances.

Similarly, after reading utterances of varying simplification levels (i.e., single words, telegraphic utterances, and grammatically complete sentences) in different communicative scenarios, all except one parent reported that the grammatical utterances felt the most natural to say in almost every communicative scenario. Most parents also reported the telegraphic utterances as feeling the most unnatural to say, with single-word utterances being rated as feeling the most unnatural on several occasions. These results align with the relatively high frequency of grammatical language samples and low frequency of extensively simplified utterances (e.g., TI) in parents' language samples, which further suggests that grammatical language input comes more naturally to parents and that ungrammatical language input is more likely to feel unnatural. This connection between how parents felt about the different utterances and their own language samples is also supported by previous research linking perspectives on language input strategies to practice by SLPs (Venker et al., 2020) and parents (Andary, 2020).

Results from the current study revealed that preferences for what felt most natural occasionally differed by communicative scenario. When parents explained why one of the heavily simplified utterances felt more natural than the grammatically complete utterance, it was often related to being more direct and getting the message across without "unnecessary" words. Case-by-case feelings of naturalness are relevant to language input strategies that recommend parents use the strategy whenever they speak to their child or "as much as possible," as in the case of many NDBI strategies (Bruinsma et al., 2020; Binns & Oram Cardy, 2019; Frost & Ingersoll, 2019; Frost et al., 2022; Ingersoll & Dvortcsak, 2019; Kasari et al. 2021; Rogers et al.,

2012). Strategies may feel more or less natural depending on the communication situation, in addition to pre-existing feelings about simplified language input.

Recommendations and Their Impact. Parents also showed a preference for grammatically complete language input over TI when they were asked about specific strategies and recommendations. The closer the strategies were to full-length, grammatically complete utterances, the more likely parents were to fully agree with the strategy. The inverse was also true: the closer the strategies were to ungrammatical utterances, the more likely parents were to fully disagree with the strategy. However, a few parents expressed uncertainty about the effectiveness of each strategy, mostly for one-up and TI, stating that the effectiveness of each strategy likely depends on the child. These results suggest that, as a whole, parents generally have an opinion one way or another about certain strategies although it may not be so black and white for every parent. Similar findings resulted from Andary's (2020) survey study on parent perspectives about simplified language input where most parents expressed an opinion on language input strategies, but a small margin of parents still reported feeling neutral about certain strategies. Additionally, the parent perspectives from the current study suggest that parents may feel less comfortable with heavily simplified speech, particularly ungrammatical speech, compared to recommendations to speak in full sentences.

When asked to describe language-related recommendations they have received, parents most often mentioned recommendations that were unrelated to simplifying language input. However, several parents reported receiving recommendations related to using full-length grammatical sentences, telegraphic speech, and/or one-up input. Telegraphic and one-up strategies were recommended by behavior analysts and SLPs. No grammatical strategies were ever reported to be recommended by professional clinicians—they came from family members

or independent research instead. These results suggest that most explicit language input recommendations parents hear about involve simplifying length or removing words that contribute to the grammatical completeness of an utterance but are deemed "unnecessary." However, several parents mentioned receiving recommendations to narrate what their child/they themselves are doing as they are doing it (i.e., parallel talk and self-talk) or simply to talk as much as they can. Recommendations like these are common strategies to increase the quantity and quality of the language input children hear (DesJardin & Eisenberg, 2007; Kaiser & Hancock, 2003). Increasing the quantity of language input may imply that parents should speak in grammatically complete utterances (as talking more may suggest to parents that their sentences should be longer or at least grammatically complete). However, clinicians who intend for parents to use grammatically complete utterances when they make language input recommendations like parallel talk and self-talk may need to be more explicit, as none of the parents in the current study reported receiving any recommendations on grammatically complete language input.

In addition to some parents receiving explicit recommendations from practitioners to use TI and the one-up rule, other parents reported adopting telegraphic and one-up strategies from simply observing clinicians interact with their child and other children. These results indicate that even when parents do not receive explicit recommendations to modify their language (i.e., in the case of parent-implemented interventions), they still observe and integrate "clinical language strategies" into their daily life in the hopes that they are supporting their child's language development. Clinicians should consider how they model language for parents and caregivers, who may incorporate that form of language input at home. With a lack of evidence to support strategies like TI (Bang et al., 2020; Eisenberg, 2015; Sandbank & Yoder, 2016; Van Horne,

2020; van Kleeck et al., 2010; Venker et al., 2015, 2019, 2020), it is concerning that more heavily simplified language input strategies were recommended to or adopted by parents, compared to other strategies with a firmer evidence-base (i.e., grammatically complete language input; Bang et al., 2020; Eisenberg, 2015; Fusaroli et al., 2019; Naigles, 1990; Venker et al., 2015).

Clinicians should also consider the impact that their language input recommendations may have on parents. In general, parents reported positive outcomes from the language input recommendations they received. However, for the more heavily simplified language input recommendations, it was common for parents to report more effortful and uncomfortable communication compared to how they typically talked to their child. Some parents reported that they stopped using the recommendation because it did not feel natural or helpful. Discontinuing a strategy because the parent felt uncomfortable or did not see any benefits aligns with previous research that indicates that individuals who implement strategies (e.g., parents/caregivers and clinicians) are less likely to use a strategy if it does not match their baseline views and opinions on the given strategy (Andary, 2020; Rieth et al., 2018; Stahmer et al., 2017; Wainer et al., 2017).

Other parents, however, said that they continued to use the language input strategy even though it made communication more effortful. Increased effort and discomfort while using language input strategies during communication should not be taken lightly regardless of the strategy, but even more so for strategies that do not have an evidence base to support them or have evidence that recommend against their use (i.e., TI; Bang et al., 2020; Bottema-Beutal & Kim (2020); Eisenberg, 2015; Sandbank & Yoder, 2016; Van Horne, 2020; van Kleeck et al., 2010; Venker et al., 2015, 2019, 2020). Making communication more effortful for parents of

children with autism should be of particular concern when communicating with their child may already feel difficult or one-sided (Heidlage et al., 2019; Roberts et al., 2014; Sameroff, 1975). The fact that some parents continued to use a strategy even though it made communication more effortful suggests that parents look to professionals for their expert opinions and rely on them for what they should do, perhaps even more so than other sources of recommendations (e.g., independent research, friends and family, social media, etc.; Pickard et al., 2016).

Wanting to Do What's Best for Their Child. Questions that targeted parents' beliefs about the best way to talk to their child with autism to support their language development revealed that parents hold a wide range of perspectives related to the subject. Results suggested, however, that parents consider grammatically complete language (i.e., less simplified language) to be more beneficial for their children's language development than extensively simplified language input. In addition to most parents rating grammatical utterances as feeling the most natural to say in each communication scenario, even more parents rated the grammatical utterances as being the most beneficial utterance to support their child's language development. In almost every case where ratings for the most natural utterance and the most beneficial utterance did not align, parents rated the grammatical utterance as the most beneficial even if they reported that a different utterance felt more natural. These results suggest that parents associate grammatically complete, albeit simple, utterances with the most benefits for their child's language development, possibly due to the "proper" (i.e., correct) grammatical structure or the higher quantity of words compared to their telegraphic or single-word counterparts. Andary (2020)'s survey study had similar findings, which revealed that parents generally considered shortened, grammatically complete utterances to be more beneficial than TI. As a result, parents may feel more open to recommendations like grammatically complete utterances that already align with their beliefs

about what would be most beneficial. However, these results also suggest that parents stick to what feels natural to them even if they suspect that a different form of language input may be more beneficial, which is consistent with previous research that studied the influence of parent perspectives on implementation fidelity (Rieth et al., 2018; Stahmer et al., 2017; Wainer et al., 2017).

In a more open line of questioning about the most beneficial way to speak to their child to support their language development, parents gave a variety of responses. Some parents mentioned grammatically complete utterances and utterance length in their responses, but no parent mentioned TI as the most beneficial way to speak to their child. The diversity of responses indicates that parents may have different priorities for their child's communication development and/or may value other components of language input more than utterance length and complexity. However, given that half of the parents in the current sample expressed uncertainty about whether they were speaking in a way that was helping their child develop language, additional coaching and education about beneficial forms of language input throughout their child's language development may be desirable. The lack of responses that mentioned the use of ungrammatical language input also reflects the many negative responses parents gave throughout the study, regarding ungrammatical language forms. Furthermore, parents unanimously reported that their child understands more than they say, suggesting that they are aware that children's expressive communication does not represent their comprehension abilities. Thus, parents may have these comprehension abilities in mind when deciding how to talk to their child. This finding relates to results from Andary (2020), showing that parents reported receptive language to be the most important factor to consider when deciding how to speak to a child with a language delay compared to three other factors (expressive level, cognitive level, and age).

Strengths and Limitations

The current study had several strengths. To our knowledge, this study is the first to research parent perspectives regarding simplified language input for children with autism using a qualitative interview design. By adopting a qualitative approach, this study provided a wide range of perspectives from the viewpoints of parents of children with autism. This can largely be attributed to the qualitative methods used to answer the research questions. Qualitative approaches are ideal for studying complex, real-world issues and provide a rich source of data from which theoretical models can develop and be tested (Tetnowski, 2015). These theoretical models can then be used to support and guide intervention. In the current study, interview questions and data analysis were framed to inform caregiver-mediated intervention.

The current study was also comprehensive in its data analysis, which began by formulating over 200 open codes that were later grouped into more meaningful code clusters through axial coding. The extensive coding development and line-by-line coding process of the transcript supported data saturation and mitigated the risk of missing key concepts and main themes that were represented in the interviews (Holton, 2010; Olson et al., 2016). Codes were also developed across numerous discussions and reviews of the interview transcripts by three separate researchers. This method of involving several researchers with different backgrounds and knowledge about the subject matter limits the influence of researcher bias on code development and code application and also increases validity (Olson et al., 2016). After the primary researcher applied the codes to all transcripts, the two other team members checked each transcript for accuracy, followed by discussions to reach consensus as a team on some code applications which further limited researcher bias in data analysis. Qualitative methods like grounded theory often yield much lower percentages of reliability compared to other methods of

data analysis, so the relatively high inter-coder reliability that the research team met is another strength of the current study (Marques & Mccall, 2005; Olson et al., 2016).

This study also had some limitations. For one, the relatively small sample size and lack of diversity in gender, race, ethnicity, and educational level limits the generalizability of results. Additionally, socioeconomic diversity in the current sample may have been limited by the requirement to have a stable internet connection. As a result of the lack of diversity in the current sample, it is uncertain whether a larger sample of parents from different racial, ethnic, or socioeconomic backgrounds would have resulted in findings similar to the ones presented here. A larger sample would also support the likelihood of having greater representation of child expressive language levels compared to the current study.

In the case of any qualitative research approach that utilizes researchers as the data analysis instrument, implicit researcher bias resulting from individual experiences and knowledge backgrounds is a given (Clark & Vealé, 2018; Norris, 1997). As mentioned previously, attempts were made to limit researcher bias by involving researchers with differing levels of knowledge and experience concerning study development, autism, and simplified language input in the research team. Led by the primary investigator, each team member provided unique perspectives and insights throughout code development and data analysis to reduce the effect of any one team members' biases (Harris & Burke, 2011; Olson et al., 2016).

The current study developed an interview guide that aimed to elicit the most representative and descriptive responses from parents. However, questions that asked parents to provide an example of what they might say to their child in certain scenarios did not elicit true language samples, as responses from parents were largely hypothetical. Additionally, the face-to-face format of the interview could have influenced parent responses if they were explicitly or

implicitly attempting to give responses that they thought the interviewer might want to hear (i.e., participant bias). Finally, given the semi-structured format of the interviews, all questions on the interview guide were covered, but there were occasional minor changes in question order, as well as additional follow-up questions in response to parent statements. This strategy supports theme generation and richer data (Nealy et al., 2012) but results in interviews that are not identical to one another.

Future Directions

Future research on parent perspectives of simplified language input would benefit from additional qualitative studies that include a more diverse group of parents and caregivers regarding race, education level, socioeconomic level, and gender. There is reason to believe that responses from a more diverse sample would be uniquely illuminating, as parents and caregivers with varying demographic characteristics will represent a wider range of experiences and perspectives (e.g., bilingualism, use of non-mainstream dialects). Furthermore, a sample that is more representative of parents and caregivers with different racial backgrounds, from lower resourced households, and/or with lower education levels will likely differ from the demographic characteristics of the clinicians instructing them on language input strategies.

Future studies that expand on the questions asked of parents in the current study would provide further insight into how language input recommendations may be delivered to parents and caregivers. For example, future qualitative studies may ask participants how they think clinicians can change their instruction and coaching practices to acknowledge parent and caregiver views. This line of research could inform how clinician can work to reduce feelings of discomfort or disagreement with recommendations by better understanding the perspectives of the caregivers who are partners in intervention (Douglas et al., 2020; Inbar-Furst et al., 2020;

Meadan et al., 2018; Rush & Sheldon, 2011). There is also a need for additional experimental research into how baseline parent perspectives or practices can inform strategy selection or the ways in which strategies are delivered. For example, an intervention study that collects caregivers' language samples and views on simplified language input at baseline can then deliver the same recommendation in different ways (e.g., with/without a rationale, with/without individualization to the parent's views, etc.) to better understand how to improve service delivery and the clinical partnership between parents and clinicians.

Final Conclusions

Client and caregiver perspectives are one of the three primary components of evidence-based practice (ASHA, n.d.). The results of the current study suggest that parents hold a wide range of perspectives on simplified language input, with many expressing uncertainty about the "best" way to speak, frustration with recommendations, and guilt for not being able to carry-through with recommendations that felt unnatural. Therefore, clinicians and early intervention (EI) providers should consider routinely asking caregivers if any recommended strategies feel uncomfortable or particularly effortful. From there, the clinician or EI provider can work to reduce these feelings through discussions with parents and caregivers, practicing strategies with them, or modifying the strategy to better reflect the perspectives and experiences of the parents and caregivers. This method of encouraging reflection and open discussion with parents about strategies is a core standard of successful parent-implemented intervention (Douglas et al., 2020; Inbar-Furst et al., 2020; Meadan et al., 2018; Rush & Sheldon, 2011). Unfortunately, encouraging reflection and gathering parent perspectives on caregiver-mediated intervention strategies may be one of the least used strategies compared to other coaching practices, such as joint planning and putting planning into practice (Meadan et al., 2018).

Clinicians may also ask themselves how ethical or beneficial it is to ask parents to use a given strategy if it makes communication with their child more effortful or uncomfortable, if parents stop using the strategy because it feels too unnatural, or if it does not have robust empirical evidence to support its use (Bottema-Beutel & Kim, 2020). The results of the current study suggest that this is a particular concern for more heavily simplified language input, as the strongest feelings *against* recommendations were directed toward more extensively simplified language like TI, and grammatically complete utterances appeared to be the default for parents when they speak to their children. However, reports of naturalness and types of language input in parent samples varied by communicative scenario, so clinicians should consider avoiding "blanket statements" that instruct parents to *always* use one type of language input strategy when different strategies feel more/less natural depending on the situation. For example, it might feel more natural for a parent to use TI to give directions to their child than it would when they are playing with their child.

Results from the current study also suggest that even if parents do not receive explicit language input recommendations, it does not stop them from observing how clinicians interact with their children and adopting the strategies they see. Given that many parents expressed uncertainty about how they should speak to their children, it makes sense that parents and caregivers would look to the "expert" models in place of receiving explicit instruction on language input strategies. Therefore, even if clinicians who work with children with autism do not make it a practice to coach parents on language input strategies, they should be aware that how they speak to their clients may act as an implicit language input recommendation.

In summary, clinicians and EI providers should make it a point to understand and incorporate client and caregiver perspectives into their clinical practice. This is true for any

intervention, but even more so for those interventions that ask the parent or caregiver to implement intervention strategies into their daily life. Telling parents how they should communicate with their children should not be taken lightly. It has been established that the quantity and quality of language input directed to children with autism is related to child language outcomes (Bang & Nadig, 2015; Bang et al., 2020b; Hart & Risley, 1995; Hoff, 2003; Rowe & Snow, 2019; Weisleder & Fernald, 2013), which makes language input a worthwhile area to target in intervention. However, given the lack of evidence to support some commonplace language input recommendations, clinicians must weigh the empirical evidence, their clinical expertise, and client and caregiver perspectives to provide the most appropriate and beneficial services to children with autism and their families.

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APPENDIX A: RECRUITMENT FLYER

Figure 2: Recruitment Flyer

APPENDIX B: SCREENER AND BACKGROUND SURVEY

* Required

* This form will record your name, please fill your name.

1. This study is about parents' views on different strategies used in language intervention. Participants will take part in a one-hour interview over Zoom and will receive a $30 Amazon gift card for their time. The purpose of the study is to gather new insights regarding the design and implementation of effective language interventions for young children. About 20 people will participate in this study. Participation is completely optional and voluntary. Select *Continue* to find out if you're a good fit! *

   ◯ Continue

2. Are you over the age of 18? *

   ◯ Yes

   ◯ No

3. Are you the parent of a child who has been diagnosed with autism and is younger than 6 years of age? *

   ◯ Yes

4. What is the primary language spoken in your home? *

   ◯ English

   ◯ Spanish

   ◯ French

   ◯ Arabic

   ◯ Mandarin

   ◯ Other

5. Do you have access to reliable internet and a private space where you can do the interview? *

- ◯ Yes
- ◯ No

6. We appreciate your interest in our study. The results of this eligibility survey indicate that you do not qualify for this study. Thank you for your time.

- ◯ End survey

7. Great! You are eligible for this study.

   These next questions should only take a few minutes to answer. Questions will ask about your child's autism diagnosis/intervention history, your background, and your contact information. You do not have to answer any questions you do not wish to answer, and you may stop the survey at any time. Your participation in answering these questions is voluntary. Your answers will be confidential. No one will know your answers except for the research team. If you do not end up taking part in the study, your answers will be destroyed. If you do participate, your responses will be kept with the research record.

   Would you like to continue with the questions? If yes please select *Continue*.

- ◯ Continue

8. What is your name? *

9. What is your email address? *

10. What is your preferred phone number? *

11. Do you have a child with autism?

12. What is his/her/their name?

13. What is his/her/their birthdate?

14. What is his/her/their sex?

15. When was she/he/they diagnosed with autism?

16. Is there a history of autism in your family?

- ◯ Yes
- ◯ No

17. Please list any family members you know of who have autism, as they relate to your child (e.g., child's uncle, sibling, cousin, parent, etc.)

18. Has your child received any speech-language intervention?

- ◯ Yes
- ◯ No

19. What speech/language communication goals were targeted?

20. How many years of speech-language intervention has he/she/they received?

21. How old was your child when speech-language intervention began?

22. If your child is no longer receiving any-speech language intervention, how old was he/she/they when intervention ended?

23. Has your child received any other intervention services?

- ◯ Yes
- ◯ No

24. Please select any that apply:

- ☐ Occupational therapy
- ☐ Applied Behavior Analysis (ABA)
- ☐ Physical therapy
- ☐ Hearing impairment services
- ☐ _____

Other

25. How many years of intervention has she/he/they received (excluding speech/language intervention)?

_____

26. When did he/she/they begin intervention (excluding speech/language intervention)?

_____

27. Have you ever received coaching/family training on how to implement interventions in your home?

- ◯ Yes
- ◯ No

28. Who provided the coaching/family training?

- ○ Speech therapist
- ○ Occupational therapist
- ○ Psychologist
- ○ Behavior technician
- ○ Other

29. How old was your child when you received the coaching/family training?

30. Does your child with autism have any siblings?

- ○ Yes
- ○ No

31. How many?

32. Do his/her/their siblings have an autism diagnosis or other special needs? If yes, please describe.

33. What is the highest degree or level of schooling you have completed?

- ○ Some high school
- ○ Completed high school (or GED)
- ○ Some college
- ○ Associate's degree
- ○ Bachelor's degree
- ○ Master's degree
- ○ Doctoral degree/Professional degree
- ○ Other

34. Which race category(ies) best describe(s) you? You may choose more than one.

- ☐ American Indian or Native Alaskan
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or Pacific Islander
- ☐ White
- ☐ Other

35. What ethnicity do you identify with?

- ○ Hispanic
- ○ Non-Hispanic

36. In what state and city do you currently live?

37. Have you ever taken classes/coursework in child development?

- ◯ Yes
- ◯ No

38. If yes, pease describe:

39. How did you hear about this study?

- ◯ From an early intervention provider
- ◯ From a family member or friend
- ◯ Through social media
- ◯ Other

40. Thank you for completing this survey! A Lingo Lab researcher will reach out to you with more details on how to participate in our parent interview study. If you would like to contact us with questions or comments, please email us at lingolab@msu.edu (mailto:lingolab@msu.edu).

APPENDIX C: CONSENT FORM

Research Participant Information and Consent Form

Study Title: Parent Perspectives Regarding Simplified Language Input: A Qualitative Interview Study

Researcher and Title: Kendra Peffers, Research Assistant, & Courtney E. Venker, Ph.D., CCC-SLP, Assistant Professor
Department and Institution: Communicative Sciences and Disorders, Michigan State University

Contact Information: Oyer Building, 1026 Red Cedar Road, Room 216, East Lansing, MI 48824

Sponsor: NA

BRIEF SUMMARY

You are being asked to participate in a research study. Researchers are required to provide a consent form to inform you about the research study, to convey that participation is voluntary, to explain risks and benefits of participation including why you might or might not want to participate, and to empower you to make an informed decision. You should feel free to discuss and ask the researchers any questions you may have.

This study is about parents' views on different strategies used in language intervention. The purpose of the study is to gather new insights regarding the design and implementation of effective language interventions for young children. About 20 people will participate in this study. You are eligible if you are over the age of 18 and are the parent of a young child with autism.

WHAT YOU WILL BE ASKED TO DO

- You will be asked to participate in a 1-hour interview using secure teleconferencing technology.
- You will be asked about your thoughts, feelings, and experiences with regards to strategies used in language intervention

POTENTIAL RISKS AND BENEFITS

- The most likely risks of participating in this study are minor discomfort if answering any of the questions is difficult. You are free to skip any question you prefer not to answer.
- You will not directly benefit from your participation in this study. However, your participation in this study may contribute to a better understanding of best practices for language intervention, which would increase the effectiveness of language intervention for families.

PRIVACY AND CONFIDENTIALITY

- The online conversation will take place in a private location and will be recorded and transcribed. Information that identifies you, including your name, will be removed from the transcripts. The transcripts, which are not linked to you, could be used for future research

studies or distributed to another researcher for future studies without additional informed consent from you. The data for this project will be kept confidential. Information about you will be kept confidential to the maximum extent allowable by law. You will not be identified in any presentation or written reports about this study. Pseudonyms will be used to protect privacy. Direct quotes will not be linked to you individually. Data from this study will be stored indefinitely. Our research team and the Michigan State University Human Research Protections Program will have access to this information. Data will be stored in a secure, password-protected online location and/or a locked file cabinet.

YOUR RIGHTS TO PARTICIPATE, SAY NO, OR WITHDRAW

- Participation is voluntary. You may choose not to answer specific questions or to stop participating at any time. Choosing not to participate or withdrawing from this study will not make any difference in the quality of any services you may receive.

COSTS AND COMPENSATION FOR BEING IN THE STUDY

- You will receive a $30 gift card for your time. You will receive the payment via email after completing the interview.

CONTACT INFORMATION

If you have concerns or questions about this study, such as scientific issues, how to do any part of it, or to report an injury, please contact the researcher.

Kendra Peffers: lingolab@msu.edu, 517-884-8869

Courtney E. Venker: cvenker@msu.edu, 517-884-8869

If you have questions or concerns about your role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Michigan State University's Human Research Protection Program at 517-355-2180, Fax 517-432-4503, or e-mail irb@msu.edu or regular mail at 4000 Collins Rd, Suite 136, Lansing, MI 48910.

The contents of this form will be reviewed with you before the interview begins. By beginning the interview, you indicate your voluntary agreement to participate in this study.

APPENDIX D: INTERVIEW SCRIPT AND QUESTIONS

Because you provided informed oral consent to participate in this study, we will now begin the interview. Is that okay with you?

Thank you again for participating. I'm just going to ask you some questions about (CHILD)'s communication, some questions about your communication, and some of your experiences as (CHILD)'s parent. Feel free to answer honestly and to the best of your ability, and I am happy to elaborate on questions if it's helpful. There are no right or wrong answers, this is all about getting your perspectives as a parent.

Background
I'd like to start off by hearing about (CHILD) and HIS/HER communication…

1. How does (CHILD) usually communicate? (E.g., gestures (pointing, reaching), vocalizations (sounds), speech, a speech-generating device, pictures, etc.)

2. IF CHILD IS VERBAL: When (CHILD) uses spoken language to communicate, does S/HE typically say one word at a time (e.g., Go, Toy), two words (e.g., Want milk), or full sentences (e.g., I want milk, give me the toy)?

3. IF CHILD COMMUNICATES: Tell me a few examples of things (CHILD) has spontaneously said recently, (i.e., not repeating someone else, but on HIS/HER own).

4. If (CHILD) wants something (e.g., cookie), how does S/HE let you know?

5. How well does (CHILD) understand what you say?

    a. How do you know S/HE understands? (E.g., does S/HE follow directions?)

6. Can (CHILD) answer yes/no questions or simple questions? (E.g., what do you want to eat?)

Questions about how they speak to their child
Thanks for telling me about (CHILD). Now I'm interested in hearing a little more about you and <u>your</u> communication.

7. How do you typically communicate with (CHILD)? (E.g., spoken words or AAC)

8. For this next part, I am going to share my screen because I'll be describing a few scenarios where I want you to imagine that you're taking (CHILD) to the zoo, and I'll ask you some questions about what you might say to (CHILD) before, during, and after the trip.

a. So first, if you need (CHILD) to get HIS/HER coat and shoes on to get out the door, what would you say to (CHILD), word for word? *(Write response)*

b. When you get to the zoo, give me 3 examples of comments you might make to (CHILD), word for word, about the animals in the zoo. *(Write response)*

c. What might you do or say, word for word, if (CHILD) doesn't understand what you originally said [*about the animals*]? *(Write response)*

d. Parents often model language for their child to imitate or repeat back… What would be something you might say about one of the animals, word for word, that (CHILD) could repeat back? *(Write response)*

e. If you want (CHILD) to choose between two snacks, what would you say, word for word to prompt HIM/HER to choose?

f. Last one, let's say you get home and a little later you're playing with (CHILD) and some stuffie souvenirs from the zoo. Give me 3 examples of what you might say, word for word, while you're playing.

9. One of the goals of this study is to understand the thought processes of parents when they're speaking to their child. I'd like to try using some of those zoo scenarios we just went over to try to outline your language thought process in a type of "think-aloud" activity. This isn't something a lot of people consciously think about, so if some of these questions feel hard, that is okay just do your best!

    a. So in that example about getting HIS/HER shoes on, can you just walk me through your thought process for that instruction? Starting with noticing that coat/shoes need to go on, deciding what you want to say to (CHILD) and how you want to say it, and ending with actually saying it. *(If they don't make language-related comment, ask:* If it doesn't seem like (CHILD) understands, what would you say next, and why would you say it that way?)

    b. Great, now using that same think-aloud you just gave me for the shoes, walk me through your thought process that led up to your 3 comments about ____.

    c. How about when you needed to help (CHILD) understand what you said about ____?

    d. Last one! Give me another think-aloud for trying to get (CHILD) to repeat back what you said.

10. When you are speaking to (CHILD), how does it compare to how you speak to another adult, like how we're speaking now? How about length of the things you say to (CHILD), generally? Do you leave out certain words or do you use full sentences?

11. Do you speak to CHILD in that way every time you speak with (CHILD)?

    a. **IF NO**: Do you speak to CHILD in that way only in some situations? Tell me more about that.

        i. I am going to list a few examples of some common scenarios, and I just want you to tell me if this is a situation where you modify/use adult-like communication:

            1. Do you use it when you're asking (CHILD) a question?
            2. How about when you're clarifying something?
            3. Trying to get HIS/HER attention?
            4. Asking (CHILD) to do something?
            5. Playing?
            6. Or something else?

12. You may or may not have thought about this before or you may have been thinking about it in those think-aloud questions, but why do you think you speak to (CHILD): [Differently from how you would speak to an adult] [The same as how you would speak to an adult]?

    a. I'll list a few possible reasons for example:
        i. To help (CHILD) understand you better?
        ii. To get (CHILD) to repeat what you're saying?
        iii. To help teach HIM/HER something?
        iv. To get HIS/HER attention?
        v. To support HIS/HER language learning?
        vi. Or something else?

13. Did the autism diagnosis change the way you talked to (CHILD)?

    a. **IF YES:**

        i. How so?

        ii. What made you change the way you talk?

Intervention-related Questions

These next questions are going to get into what you might have heard about ways to support (CHILD)'s language skills. For example, from any interventions, healthcare specialists, word of mouth, social media, books.

14. To start, have you heard any tips or recommendations about how to support (CHILD)'s language skills? Perhaps in the intervention you mentioned in that online survey? (**IF NO/UNSURE:** What about things like reading books, doing nursery rhymes, pairing signs with words, narrating what (CHILD) is doing, labeling things, etc.)

    a. **IF NO:** MOVE ON TO Q19
    b. **IF YES**: (Anything else?)
        i. What was the recommendation?
        ii. Where did the recommendation come from?

15. Is the way you speak to (CHILD) based on any recommendation you've heard?

<table>
<tr><th colspan="2">IF NO:</th><th>IF YES:</th></tr>
<tr><td colspan="2">1. Have you heard any recommendations about how to talk to (CHILD)? (E.g., to support HIS/HER language skills?)
a. IF NO: What about how you (MODIFICATION)? Did you hear that from somewhere?
i. IF NO: MOVE ON TO Q16

2. IF YES: From where (e.g., clinical professional, speech therapist, social media, friends/family, books, etc.)? (SKIP IF ANSWERED IN Q14)

3. What was your reaction to hearing these recommendations?
a. How did it feel to get the recommendation?
b. E.g., do you think they're helpful/unhelpful, were you surprised or did they reinforce what you were already doing, did you agree/disagree?</td><td>4. What specifically about talking did you hear? (SKIP IF ANSWERED IN Q14)

5. Where did you hear this (e.g., clinical professional, social media, friends/family, books, etc.)? (SKIP IF ANSWERED IN Q14)

6. What was your reaction to hearing these recommendations?
a. How did it feel to get the recommendation?
b. Did they reinforce/differ from what you were already doing?
i. IF YES: How so?
c. What made you stick with the recommendation?

7. How often do you use these recommendations? (During all opportunities, most opportunities, a few opportunities, or no opportunities)

8. How closely do you follow these recommendations?</td></tr>
<tr><td colspan="2">9. Do you ever use those recommendations? (During all opportunities, most opportunities, a few opportunities, or no opportunities)</td><td>10. Did the way you speak to (CHILD) change as a result of these recommendations?</td></tr>
<tr><td>IF YES:</td><td>IF NO:</td><td>IF YES:</td></tr>
<tr><td>a. Why?
b. How closely do you follow those recommendations?
c. How different does it feel from how you used to talk to (CHILD) before learning about the recommendation?</td><td>a. What makes it a recommend-ation you wouldn't use?</td><td>a. How different does it feel from how you used to talk to (CHILD)?

b. Is it easier/the same/or more difficult to talk to (CHILD) using these recommendations?

c. Are you talking more/the same amount/or less compared to before you heard this recommendation? (I.e.,</td></tr>
</table>

d. Is it easier/the same/or more difficult to talk to (CHILD) using these recommendations? e. Are you talking more often/the same amount/or less often compared to before you heard this recommendation? (I.e., has the frequency that you talk to (CHILD) changed because you're using these recommendations?)		has the frequency that you talk to (CHILD) changed because you're using these recommendations?) d. Are you thinking consciously about the recommendations when you use them, or does it come naturally?

16. For this next part, I am going to share some utterances, or things people say, on the screen, and I would just like you to read them off as if (CHILD) was in the room and you were speaking to (HER/HIM). SHARE UTTERANCES OF SINGLE WORDS, TELEGRAPHIC SPEECH, AND GRAMMATICALLY COMPLETE SPEECH. SET THE SCENE BEFORE ASKING THEM TO READ. ASK THEM QUESTIONS A-C AFTER EACH SCENARIO.

    For these utterances, I want you to imagine that you're playing with (CHILD) and are seeing if SHE/HE/THEY wants the toy car in your hand.

    "CAR?" "DO YOU WANT THE CAR?," "WANT CAR?"

    For these next utterances, I want you to imagine that you see a dog running and you are pointing it out to (CHILD).

    "DOGGIE," "DOGGIE RUN," "THE DOGGIE'S RUNNING"

    For these utterances, imagine that you and (CHILD) are playing catch, and you want HIM/HER/THEM to throw the ball.

    "THROW THE BALL," "THROW BALL," "BALL"

    a. Which one of these felt the most like something you would say to (CHILD) in this scenario? Why?

    b. Which one felt the most unnatural to you? Why?

    c. Which one do you personally feel would help (CHILD)'s language development the most? Why?

For these next questions, I am going to describe some recommendations to support language. Please know that there is a wide variety of language recommendations out there, with some recommendations contradicting others. So when I ask you about what you think about some of these recommendations, there really are no right or wrong answers.

17. Some language interventions recommend that parents speak using utterances that are the same length as, or 1 word longer than the child's spoken language level. For example, parents of children who speak in 1-word utterances would only be using 1-word or 2-word utterances when speaking with their child.

    a. What is your reaction to hearing this strategy?

        1. Do the recommendations seem beneficial?
            a. Why?

    b. Do you use this strategy?

18. Some language interventions recommend that parents speak using ungrammatical simplified utterances as much as possible, such as "Dog sad" or "Charlie want snack."

    a. What is your reaction to hearing this strategy??

        1. Do the recommendations seem beneficial?
            a. Why?

    b. Do you use this strategy?

19. Some language interventions recommend that parents speak using grammatical utterances as much as possible, such as, "The dog is sad" or "Charlie wants a snack"

    a. What is your reaction to hearing this strategy?

        1. Do the recommendations seem beneficial?
            a. Why?

    b. Do you use this strategy?

20. What do you think about this statement?: children understand more than they say.
    a. Agree/disagree/neutral?

    b. Have you seen this in (CHILD)?

        i. **IF YES**: Can you give an example?

21. What do you believe is the best way to speak to (CHILD) to support HIS/HER language learning or language development?

22. Is there anything else you would like me to learn about how you speak to (CHILD) that we did not talk about?

Thank you so much for taking part in this interview. This study is really going to help us understand how parents feel about talking to their child, how we might make clinical recommendations, and how we can make parent-mediated interventions even more effective. I will send your compensation via email in the next 7-10 days, along with some of our study information if you know of any other parents who would be interested in participating. And if you have other questions about the study or for our lab, I am available by email.

APPENDIX E: INTERVIEW VISUAL SUPPORTS

Figure 3: Visual Support for the Direction Scenario

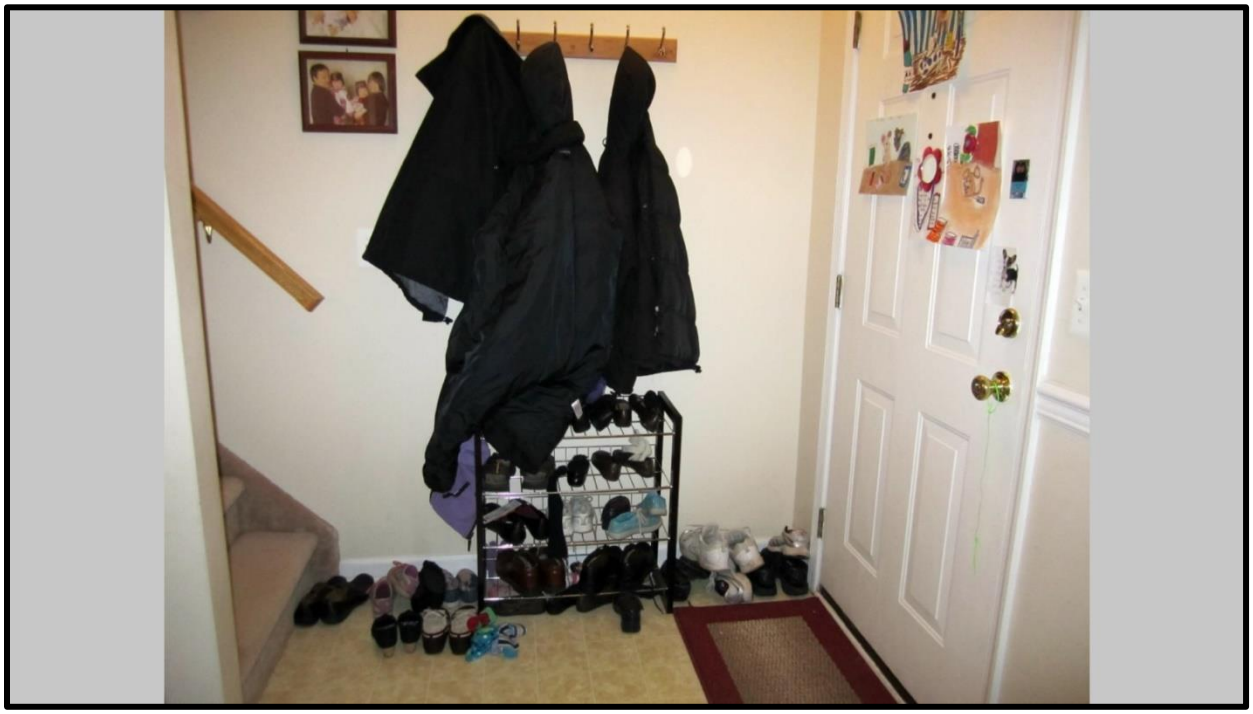


Figure 4: Visual Support for Commenting Scenario #1

Figure 5: Visual Support for Commenting Scenario #2

Figure 6: Visual Support for Commenting Scenario #3

Figure 7: Visual Support for the Choosing Scenario

Figure 8: Visual Support for the Playing Scenario

Figure 9: Visual Support for Reading Comments

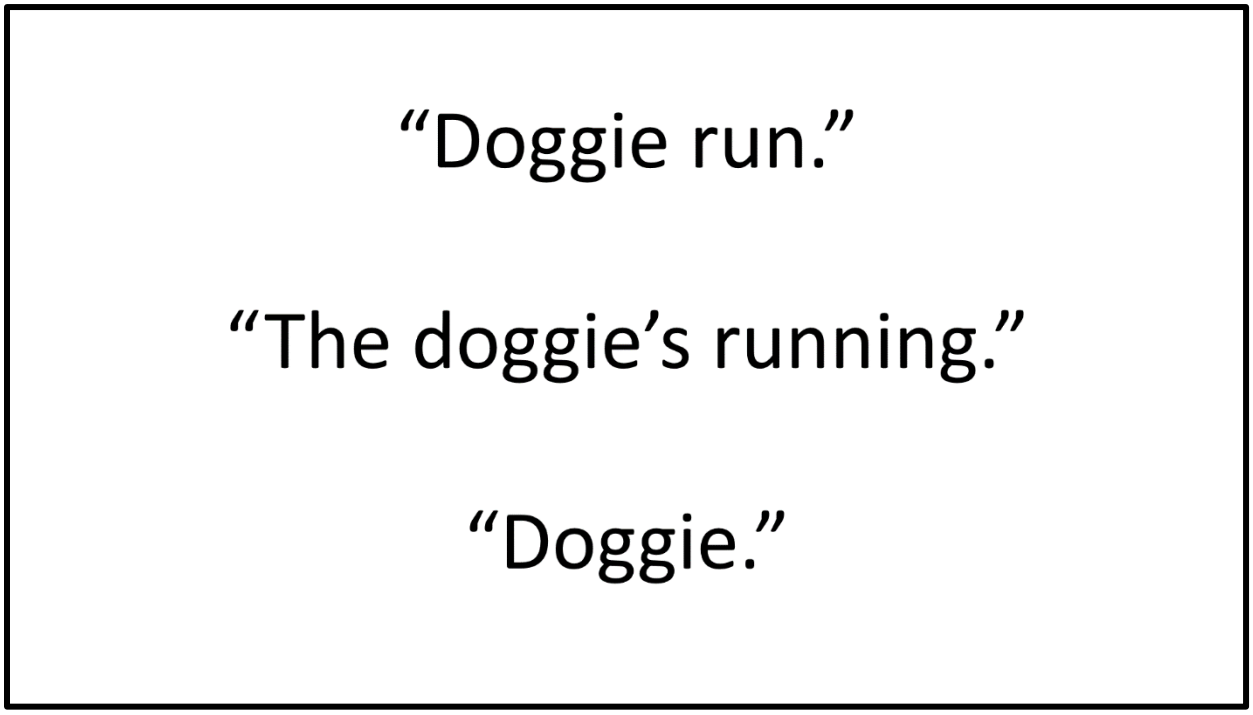


Figure 10: Visual Support for Reading Questions

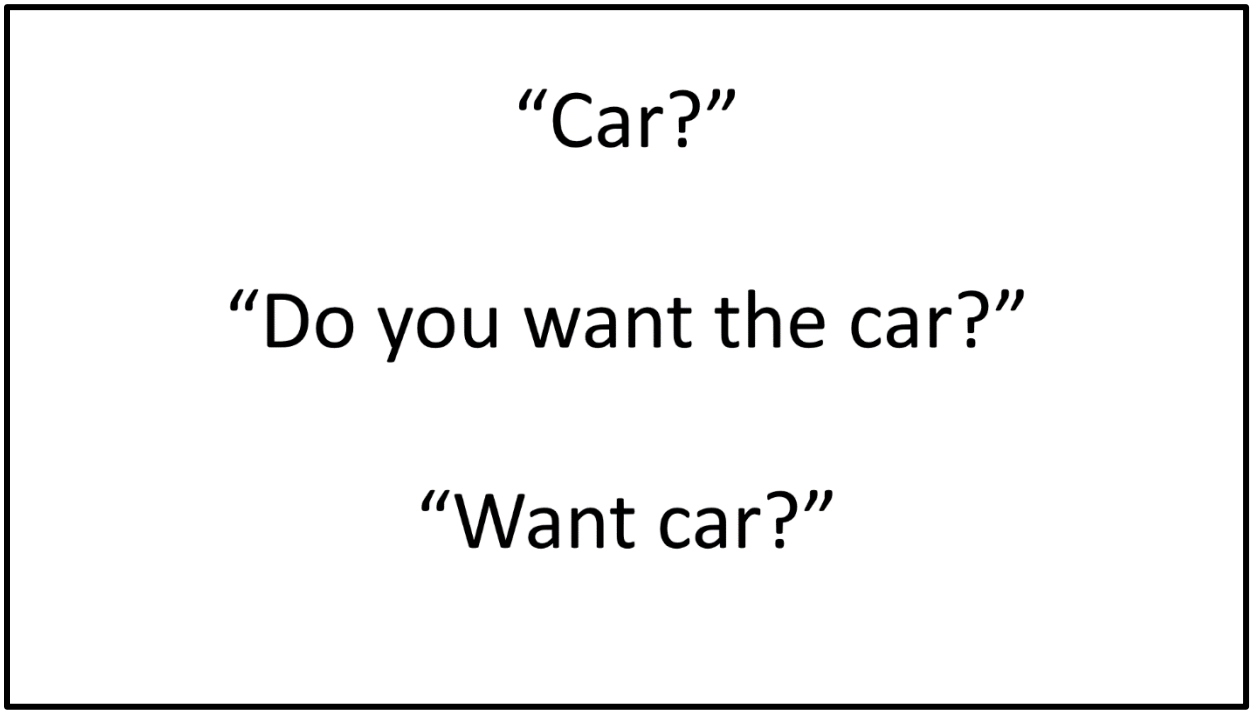
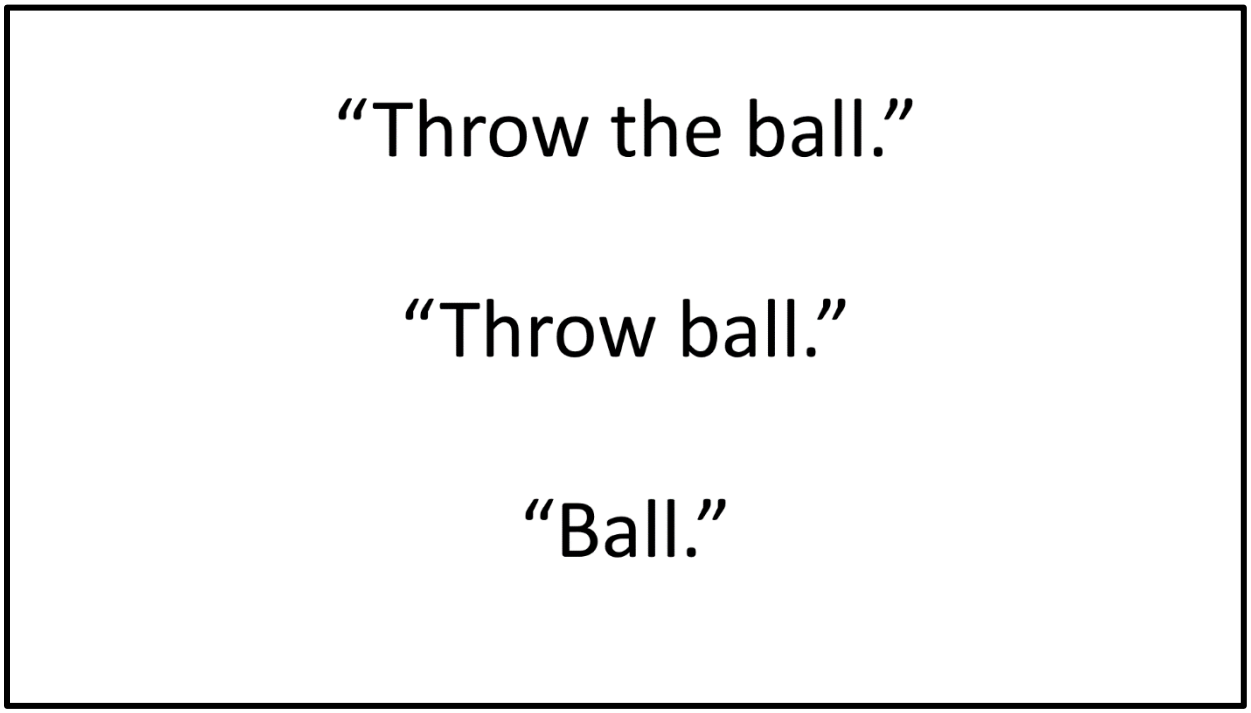


Figure 11: Visual Support for Reading Directions



APPENDIX F: CODING MANUAL

1. **Child vs. adult language input**
    a. **Definition:** Responses to the question, "How does the way you speak to XXX compare to how you speak with adults?" Do not use as stand-alone code, use the subcodes.
        i. Child vs. Adult (Same)
            1. **Definition:** Parent reports that their language input is pretty much the same for adults and their child.
        ii. Child vs. Adult (Simpler vocab)
            1. **Definition:** Parent reports that their vocabulary for children is more simplified than it is for adults. This can also include "silly talk" (e.g., made-up words that they just use with their child).
        iii. Child vs. Adult (Shorter)
            1. **Definition:** Parent reports that they use fewer words/shorter sentences when talking to their child compared to adults.
        iv. Child vs. Adult (Ungrammatical)
            1. **Definition:** Parent reports that they use fewer grammatically correct utterances when talking to their child compared to adults.
        v. Child vs. Adult (Miscellaneous)
            1. **Definition:** Parent reports that their language input to their child is different from how they would speak to adults, but the difference does not fit into any of the other categories.
2. **Changing language input**
    a. **Definition:** Use when parents indicate that the length or complexity of their speech has changed over time. Can use as a stand-alone code.
    b. Changing because of improved child language level
        i. **Definition:** Use when a parent changes their language length or complexity due to growth in the expressive and receptive language of the child.
        ii. **Contrastive Features:** Use when there is a change in the child's language level that causes the change in parental speech. Do not use when the parent reports using a certain language input strategy to increase the child's language level.
    c. Changing because of diagnosis
        i. **Definition:** Do not use as a stand-alone code; use subcodes.
        ii. <u>Change x Autism</u>
            1. **Definition:** Use when a parent changes their language length or complexity due to the child receiving a diagnosis for Autism.
        iii. <u>Change x Other</u>
            1. **Definition:** Use when a parent changes their language length or complexity due to the child receiving a diagnosis for a disability, disorder, or illness that is not Autism.
3. **Example language input**

a. **Definition:** Use when parents give an example of using a certain style of speech in a specified situation. Do not use as a stand-alone code; use subcodes.

b. Gram(sample)

i. **Definition:** Use when a parent gives an example using grammatical speech in a specified situation. Can be a stand-alone code.

ii. Gramm(sample)xQuestion

1. **Definition:** Use when a parent gives an example using grammatical speech when asking questions.

iii. Gram(sample)xDirection

1. **Definition:** Use when a parent gives an example using grammatical speech when giving directions.

iv. Gram(sample)xComment

1. **Definition:** Use when a parent gives an example using grammatical speech when making a comment.

v. Gram(sample)xModel

1. **Definition:** Use when a parent gives an example using grammatical speech when modeling language.

vi. Gram(sample)xClarify

1. **Definition:** Use when a parent gives an example using grammatical speech when clarifying a previous utterance.

vii. Gram(sample)xChoose

1. **Definition:** Use when a parent gives an example using grammatical speech when giving the child a choice.

viii. Gram(sample)xPlay

1. **Definition:** Use when a parent gives an example using grammatical speech when playing with his or her child. Can double code with questions or comments if this is the format the play-based sample is in.

c. Tel(sample)

i. **Definition:** Use when a parent gives an example using telegraphic speech in a specified situation. Can be a stand-alone code.

ii. Tel(sample)xQuestion

1. **Definition:** Use when a parent gives an example using telegraphic speech when asking questions.

iii. Tel(sample)xDirection

1. **Definition:** Use when a parent gives an example using telegraphic speech when giving directions. Can be a stand-alone code. Double-code with sub-code, if applicable.
2. **Tel(sample)xUrgency**
    a. **Definition:** Use when a parent gives an example using telegraphic speech when giving urgent directions. This may occur when there is a time constraint or when the safety of the child is in question.

iv. Tel(sample)xComment
    1. **Definition:** Use when a parent gives an example using telegraphic speech when making a comment.
v. Tel(sample)xModel
    1. **Definition:** Use when a parent gives an example using telegraphic
vi. Tel(sample)xClarify
    1. **Definition:** Use when a parent gives an example using telegraphic speech when clarifying a previous utterance.
vii. Tel(sample)xChoose
    1. **Definition:** Use when a parent gives an example using telegraphic speech when giving the child a choice.
viii. Tel(sample)xPlay
    1. **Definition:** Use when a parent gives an example using telegraphic speech when playing with the child. Can double code with questions or comments if this is the format the play-based sample is in.

4. Clarification x Unrelated to grammar/length

a. **Definition:** Subcodes are used when asked what they do to clarify information for their child (e.g., "What would you do or say if your child didn't understand what you said?"), and they do something that doesn't relate to grammar/length (or in addition to grammar/length). Do not use as a stand-alone code. Use subcodes.

b. Clarify x Repeating
    i. **Definition:** When asked what they do to clarify information for their child (e.g., "What would you do or say if your child didn't understand what you said?"), and they repeat what they said previously.

c. Clarify x Engage them
    i. **Definition:** When asked what they do to clarify information for their child (e.g., "What would you do or say if your child didn't understand what you said?"), and they mention getting their child's attention/trying to increase their engagement as a strategy.

d. Clarify x Expansion
    i. **Definition:** When asked what they do to clarify information for their child (e.g., "What would you do or say if your child didn't understand what you said?"), and they expand on what they said previously (e.g., adding more detail, context). This can be double-coded with gram(sample)xclarify code or similar codes.

e. Clarify x Getting on level
    i. **Definition:** When asked what they do to clarify information for their child (e.g., "What would you do or say if your child didn't understand what you said?"), and they mention getting on their child's level as a strategy.

f. Clarify x Gestures

i. **Definition:** When asked what they do to clarify information for their child (e.g., "What would you do or say if your child didn't understand what you said?"), and they mention using gestures as a strategy.

5. **Reported reason for language input**
    a. **Definition:** Use when the parent gives a reason or explanation for the style of speech they use. Can use as a stand-alone code if subcodes do not fit the reason or type of language input.
    b. Reason for input unrelated to grammar
        i. **Definition:** Use when the parent gives a reason or explanation for talking a certain way that doesn't involve grammar (e.g., I keep it short/use simpler vocabulary to help my child understand better). Can be a stand-alone if subcodes do not capture the reason.
        ii. <u>Unrelated (reason) x direction</u>
            1. **Definition:** Use when a parent states that he or she would use a certain type of language input (not related to grammar) when giving a direction to the child.
        iii. <u>Unrelated (reason) x question</u>
            1. **Definition:** Use when a parent states that he or she would use a certain type of language input (not related to grammar) when asking the child a question.
        iv. <u>Unrelated (reason) x play</u>
            1. **Definition:** Use when a parent states that he or she would use a certain type of language input (not related to grammar) when playing with the child.
        v. <u>Unrelated (reason) x explain</u>
            1. **Definition:** Use when the parent states that the reason for using a certain type of language input (not related to grammar) is to explain or clarify a topic, event, or utterance to the child.
        vi. <u>Unrelated (reason) x comprehension</u>
            1. **Definition:** Use when the parent states that the reason for using a certain type of language input (not related to grammar) is to help the child comprehend an utterance, event, or topic.
        vii. <u>Unrelated (reason) x repeat/model</u>
            1. **Definition:** Use when the parent states that the reason for using a certain type of language input (not related to grammar) is to encourage the child to repeat or model the utterance or action of the parent.
        viii. <u>Unrelated (reason) x teach</u>
            1. **Definition:** Use when the parent states that the reason for using a certain type of language input (not related to grammar) is to teach information to the child
        ix. <u>Unrelated (reason) x attention</u>

1. **Definition:** Use when the parent states that the reason for using a certain type of language input (not related to grammar) is to gain the attention of the child or increase their engagement.

x. Unrelated (reason) x language learning
   1. **Definition:** Use when the parent states that the reason for using a certain type of language input (not related to grammar) is to teach the child the grammar or vocabulary or language.

xi. Unrelated (reason) x emotion
   1. **Definition:** Use when the parent states that the reason for using a certain type of language input (not related to grammar) is the emotion of either the child or the parent.

c. Reason for grammatical

i. **Definition:** Use when the parent gives a reason or explanation for using grammatical speech. Can be a stand-alone if subcodes do not capture the reason.

ii. Grammatical (reason) x play
   1. **Definition:** Use when a parent states that he or she would use grammatical speech when playing with his or her child.

iii. Grammatical (reason) x direction
   1. **Definition:** Use when a parent states that he or she would use grammatical speech when giving his or her child directions.

iv. Grammatical (reason) x question
   1. **Definition:** Use when a parent states that he or she would use grammatical speech when asking his or her child a question.

v. Grammatical (reason) x explain
   1. **Definition:** Use when the parent states that the reason for using grammatical language is to explain or clarify a topic, event, or utterance to the child.

vi. Grammatical(reason) x comprehension
   1. **Definition:** Use when the parent states that the reason for using grammatical language is to help the child comprehend an utterance, event, or topic.

vii. Grammatical (reason) x repeat/model
   1. **Definition:** Use when the parent states that the reason for using grammatical language is to encourage the child to repeat or model the utterance or action of the parent.

viii. Grammatical (reason) x teach
   1. **Definition:** Use when the parent states that the reason for using grammatical language is to teach information to the child

ix. Grammatical (reason) x attention
   1. **Definition:** Use when the parent states that the reason for using grammatical language is to gain the attention of the child or increase their engagement.

x. Grammatical (reason) x language learning
    1. **Definition:** Use when the parent states that the reason for using grammatical language is to teach the child the grammar or vocabulary or language.

xi. Grammatical (reason) x emotion
    1. **Definition:** Use when the parent states that the reason for using grammatical language is the emotion of either the child or the parent.

d. Reason for telegraphic

i. **Definition:** Use when the parent gives a reason or explanation for using telegraphic speech. Can be a stand-alone if subcodes do not capture the reason.

ii. Telegraphic (reason) x play
    1. **Definition:** Use when a parent states that he or she would use telegraphic speech when playing with the child.

iii. Telegraphic (reason) x direction
    1. **Definition:** Use when a parent states that he or she would use telegraphic speech when giving directions to the child.

iv. Telegraphic (reason) x question
    1. **Definition:** Use when a parent states that he or she would use telegraphic speech when asking the child a question.

v. Telegraphic (reason) x explain
    1. **Definition:** Use when the parent states that the reason for using telegraphic speech is to explain or clarify a topic, event, or utterance to the child.

vi. Telegraphic (reason) x comprehension
    1. **Definition:** Use when the parent states that the reason for using telegraphic speech is to help the child understand an utterance, event, or topic.

vii. Telegraphic (reason) x repeat/model
    1. **Definition:** Use when the parent states that the reason for using telegraphic speech is to encourage the child to repeat or model the action or utterance of the parent.

viii. Telegraphic (reason) x teach
    1. **Definition:** Use when the parent states that the reason for using telegraphic speech is to teach new information to the child.

ix. Telegraphic (reason) x attention
    1. **Definition:** Use when the parent states that the reason for using telegraphic speech is to gain the attention of the child or increase their engagement.

x. Telegraphic (reason) x language learning

1. **Definition:** Use when the parent states that the reason for using grammatical language is to teach the child the grammar or vocabulary or language.

xi. Telegraphic (reason) x emotion
1. **Definition:** Use when the parent states that the reason for using grammatical language is the emotion of either the child or the parent.

e. Reason for one-up

i. **Definition:** Use when the parent gives a reason or explanation for using one-up speech. Can be a stand-alone if subcodes do not capture the reason.

ii. One-up (reason) x direction
1. **Definition:** Use when a parent states that he or she would use one-up speech when giving a direction to the child.

iii. One-up (reason) x question
1. **Definition:** Use when a parent states that he or she would use one-up speech when asking the child a question.

iv. One-up (reason) x play
1. **Definition:** Use when a parent states that he or she would use one-up speech when playing with the child.

v. One-up (reason) x explain
1. **Definition:** Use when the parent states that the reason for using one-up speech is to explain a topic, event, or utterance to the child.

vi. One-up (reason) x comprehension
1. **Definition:** Use when the parent states that the reason for using one-up speech is to help the child understand an utterance, event, or topic.

vii. One-up (reason) x repeat/model
1. **Definition:** Use when the parent states that the reason for using one-up speech is to encourage the child to repeat or model the action or utterance of the parent.

viii. One-up (reason) x teach
1. **Definition:** Use when the parent states that the reason for using one-up speech is to teach new information to the child.

ix. One-up (reason) x attention
1. **Definition:** Use when the parent states that the reason for using one-up speech is to gain the attention of the child or increase their engagement.

x. One-up (reason) x language learning
1. **Definition:** Use when the parent states that the reason for using one-up speech is to teach the child the grammar or vocabulary or language.

xi. One-up (reason) x emotion

1. **Definition:** Use when the parent states that the reason for using one-up speech is to the emotion of either the child or the parent.

6. Recommendations they've received

a. **Definition**: Use when parents report recommendations that they have received in the past. Do not use as a stand-alone code. Use the subcodes only.

b. Not related to grammar x Recommendations

i. **Definition**: Use when parent says they have heard of a recommendation that does not relate to length/structure.

ii. **Example**: "Speak in a kind tone," "have my child make decisions/be independent," "narrate what the child is doing," etc.

c. Telegraphic x Recommendations

i. **Definition**: Use when parent says they have received a recommendation to use telegraphic speech when speaking to their child.

d. Grammatical x Recommendations

i. **Definition**: Use when parent says they have received a recommendation to use grammatical speech when speaking to their child.

e. One-Up x Recommendations

i. **Definition**: Use when parent says they have received a recommendation to use One-Up (1-2 word utterances for nonverbal children) when speaking to their child

f. No recommendations given

i. **Definition**: Use when parent says they have not received any recommendations at all.

7. Who gives recommendation

a. **Definition**: What resource are parents receiving their recommendations from? Use when parent says identify a source of any given recommendation. Use as a stand-alone code if the recommendation comes from a resource that is not within the subcodes. Do NOT double-code with this parent code.

b. Copy the clinician: Nothing formally – they do it after watching clinician

i. **Definition**: Use when parent says they have not received any explicit recommendations from a professional, but rather, they have picked up on techniques after watching a professional interact with their child.

c. Recommendation x Professional

i. **Definition**: Use when parent says they have received a recommendation from a professional (SLP, ABA, Pediatrician, OT). Use as a stand-alone subcode if the professional is not within these 4 categories. Double-code with sub-codes, if applicable.

ii. <u>Recommendation (Professional) x SLP</u>

1. **Definition**: Use when parent mentinos a recommendation received from an SLP

iii. <u>Recommendation (Professional) x ABA</u>

1. **Definition**: Use when parent mentinos a recommendation received from ABA

iv. Recommendation (Professional) x Pediatrician
    1. **Definition** Use when parent mentinos a recommendation received from a pediatrician.
v. Recommendation (Professional) x OT
    1. **Definition**: Use when parent mentinos a recommendation received from OT

d. Recommendation x Internet
    i. **Definition**: Use when parent says they have received a recommendation from the internet (Blogs, Facebook Groups, Social Media, etc)

e. Recommendation x Research
    i. **Definition**: Use when parent says they have received a recommendation from research articles

f. Recommendation x Books
    i. **Definition**: Use when parent says they have received a recommendation from a book

8. Reactions to recommendation

a. **Definition**: What is the parent's reaction to some of the recommendations that they have received? Use when the parent shared what their reaction was to a recommendation. This can be used as a stand-alone code if none of the subcodes capture their reaction. Only double code this code with the recommendation that is associated with their reaction (do not double code it on recommendations that are not associated with a given reaction).

b. Reaction to Received Rec x Uses it
    i. **Definition**: Use when a parent says that they are using a recommendation currently (doesn't have to do with whether they agree with it or what its impact is)

c. Reaction to Received Rec x Never used
    i. **Definition**: Use when a parent says that they ignored a recommendation/did not put the recommendation into practice. The parent may have not had the time/mental capacity to put the recommendation into practice, or they may have forgotten about it. Parent may still potentially want to use this recommendation in the future. Double code this code with the type of recommendation they have received and where it came from.
    ii. **Contrastive Features:** Does not necessarily have to be tied to a negative reaction, making this code different than 'Reaction to Received Rec x Disagree/unhelpful'.

d. Reaction to Received Rec x Works for others, not for me
    i. **Definition**: Use when parent says that a certain recommendation could still be useful for some people, but it does not work for their child, or themselves. Double code this code with the type of recommendation they have received that is associated with their reaction.

e. Reaction to Received Rec x We'll do it if we someone tells us too

i. **Definition**: Use when parent says they are very open to recommendations; generally doing what they are told that can be useful for their child. Double code this code with the type of recommendation they have received that is associated with their reaction.

f. Reaction to Received Rec x Disagree/unhelpful

i. **Definition**: Use when parent either disagrees with a recommendation or believes that the recommendation will not be helpful. Double code this code with the type of recommendation they have received that is associated with their reaction.

g. Reaction to Received Rec x Agree/helpful

i. **Definition**: Parent agrees with a recommendation and believes that it is helpful. Double code this code with the type of recommendation they have received that is associated with their reaction.

h. Reaction to Received Rec x Intimidated/Overwhelmed

i. **Definition**: Parent feels intimidated or overwhelmed by recommendations that they have received. Double code this code with the type of recommendation they have received that is associated with their reaction.

ii. **Examples**: “Seems like it will be hard," or "There's just too much I have to think about.”

i. Reaction to Received Rec x Uncomfortable

i. **Definition**: Parent found the recommendation to be uncomfortable to do or strange. Parent would not have thought of this recommendation themselves because it feels more unnatural. Double code this code with the type of recommendation they have received that is associated with their reaction.

ii. **Contrastive Features:** This code is different than ‘Reaction to Received Rec x Disagree/unhelpful’ because the parent still may think that the recommendation can be helpful.

j. Reaction to Received Rec x Tried it then stopped

i. **Definition**: Use when parent had already tried to put the recommendation into practice but had stopped using it for any reason. This code is time-dependent, so the parent would have had to explicitly mention that they have used it at some point, but no longer do anymore. Double code this code with the type of recommendation they have received that is associated with their reaction.

9. Impact of recommendation

a. **Definition:** How does the recommendation they’ve received impact them, their life, their communication, their relationships, etc.? Do not use if the recommendation didn’t have any impact. Double code with the type of recommendation it’s associated with. DO NOT use as a stand-alone code. Use the sub-codes.

b. Gramm(impact)

i. **Definition:** How does the grammatical recommendation they've received impact them, their life, their communication, their relationships, etc.? Use this code as a stand-alone if parent statement does not fit into subcodes. Double-code with sub-codes, if applicable.
ii. Gramm(impact) x Adapt
    1. **Definition:** Parent had to adapt/change how they normally spoke to their child to follow the grammatical recommendation.
iii. Gramm(impact) x Easier
    1. **Definition:** The grammatical recommendation made communication (with their child) easier/less effortful (i.e., the parent did not have to put in work to carry out the recommendation). Also use when the parent reports that it came naturally.
iv. Gramm(impact) x Positive
    1. **Definition:** The grammatical recommendation had a positive impact on their child's communication, their relationship, the parent's outlook on life, etc.
v. Gramm(impact) x Negative
    1. **Definition:** The grammatical recommendation had a negative impact on their child's communication, their relationship, the parent's outlook on life, etc.
vi. Gramm(impact) x Effort
    1. **Definition:** The grammatical recommendation made communication (with their child) more effortful (i.e., it did not come naturally, the parent had to put in work to carry out the recommendation).

c. *Telegraphic(impact)*
i. **Definition:** How does the telegraphic recommendation they've received impact them, their life, their communication, their relationships, etc.? Use this code as a stand-alone if parent statement does not fit into subcodes.
ii. Tel(impact) x Adapt
    1. **Definition:** Parent had to adapt/change how they normally spoke to their child to follow the telegraphic recommendation.
iii. Tel(impact) x Easier
    1. **Definition:** The telegraphic recommendation made communication (with their child) easier/less effortful (i.e., the parent did not have to put in work to carry out the recommendation). Also use when the parent reports that it came naturally.
iv. Tel(impact) x Positive
    1. **Definition:** The telegraphic recommendation had a positive impact on their child's communication, their relationship, the parent's outlook on life, etc.
v. Tel(impact) x Negative

1. **Definition:** The telegraphic recommendation had a negative impact on their child's communication, their relationship, the parent's outlook on life, etc.

vi. Tel(impact) x Effort

1. **Definition:** The telegraphic recommendation made communication (with their child) more effortful (i.e., it did not come naturally, the parent had to put in work to carry out the recommendation).

d. One(impact)

i. **Definition:** How does the one-up recommendation they've received impact them, their life, their communication, their relationships, etc.? Use this code as a stand-alone if parent statement does not fit into subcodes.

ii. One(impact) x Adapt

1. **Definition:** Parent had to adapt/change how they normally spoke to their child to follow the one-up recommendation.

iii. One(impact) x Easier

1. **Definition:** The one-up recommendation made communication (with their child) easier/less effortful (i.e., the parent did not have to put in work to carry out the recommendation). Also use when the parent reports that it came naturally.

iv. One(impact) x Positive

1. **Definition:** The one-up recommendation had a positive impact on their child's communication, their relationship, the parent's outlook on life, etc.

v. One(impact) x Negative

1. **Definition:** The negative recommendation had a negative impact on their child's communication, their relationship, the parent's outlook on life, etc.

vi. One(impact) x Effort

1. **Definition:** The one-up recommendation made communication (with their child) more effortful (i.e., it did not come naturally, the parent had to put in work to carry out the recommendation).

e. Not related to grammar(impact)

i. **Definition:** How does the recommendation they've received (unrelated to grammar) impact them, their life, their communication, their relationships, etc.? Use this code as a stand-alone if parent statement does not fit into subcodes.

ii. Not related(impact) x Adapt

1. **Definition:** Parent had to adapt/change how they normally spoke to their child to follow the recommendation (unrelated to grammar).

iii. Not related(impact) x Easier

1. **Definition:** The recommendation (unrelated to grammar) made communication (with their child) easier/less effortful (i.e., the

parent did not have to put in work to carry out the recommendation). Also use when the parent reports that it came naturally.

iv. Not related(impact) x Positive
    1. **Definition:** The recommendation (unrelated to grammar) had a positive impact on their child's communication, their relationship, the parent's outlook on life, etc.

v. Not related(impact) x Negative
    1. **Definition:** The recommendation (unrelated to grammar) had a negative impact on their child's communication, their relationship, the parent's outlook on life, etc.

vi. Not related(impact) x Effort
    1. **Definition:** The recommendation (unrelated to grammar) made communication (with their child) more effortful (i.e., it did not come naturally, the parent had to put in work to carry out the recommendation).

10. Changing perspective of recommendation

a. **Definition:** Use when parents indicate that they originally had one opinion on a recommendation they received, but that their current opinion is different from the original one.

11. Reaction to reading simplified utterances

a. **Definition:** Parent reaction to/perspective about one of the three language input utterances they read. Do NOT use as a stand-alone code.

b. Gramm(reading)

i. **Definition:** Parent reaction to/perspective about the grammatical utterance that they read. Do NOT use as a stand-alone code. Use the subcodes.

ii. Gram(reading) x Question x Unnatural
    1. **Definition:** Parent identified the grammatical question as feeling the most unnatural to say in the given scenario.

iii. Gram(reading) x Question x Natural
    1. **Definition:** Parent identified the grammatical question as the most natural thing they would say in the given scenario.

iv. Gram(reading) x Comment x Unnatural
    1. **Definition:** Parent identified the grammatical comment as the most unnatural thing they would say in the given scenario.

v. Gram(reading) x Comment x Natural
    1. **Definition:** Parent identified the grammatical comment as the most natural thing they would say in the given scenario.

vi. Gram(reading) x Direction x Unnatural
    1. **Definition:** Parent identified the grammatical direction as the most unnatural thing they would say in the given scenario.

vii. Gram(reading) Direction x Natural

1. **Definition:** Parent identified the grammatical direction as the most natural thing they would say in the given scenario.

viii. Gram(reading) x Greatest Benefit

1. **Definition:** Parent identified the grammatical utterance as the utterance that would likely have the greatest benefit for their child's language development.

c. *Tel(reading)*

i. **Definition:** Parent reaction to/perspective about the telegraphic utterance that they read. Do NOT use as a stand-alone code. Use the subcodes.

ii. Tel(reading) x Question x Unnatural

1. **Definition:** Parent identified the telegraphic question as feeling the most unnatural to say in the given scenario.

iii. Tel(reading) x Question x Natural

1. **Definition:** Parent identified the telegraphic question as feeling the most natural to say in the given scenario.

iv. Tel(reading) x Comment x Unnatural

1. **Definition:** Parent identified the telegraphic comment as feeling the most unnatural to say in the given scenario.

v. Tel(reading) x Comment x Natural

1. **Definition:** Parent identified the telegraphic comment as feeling the most natural to say in the given scenario.

vi. Tel(reading) x Direction x Unnatural

1. **Definition:** Parent identified the telegraphic direction as feeling the most unnatural to say in the given scenario.

vii. Tel(reading) x Direction x Natural

1. **Definition:** Parent identified the telegraphic direction as feeling the most natural to say in the given scenario.

viii. Tel(reading) x Greatest Benefit

1. **Definition:** Parent identified the telegraphic utterance as the utterance that would likely have the greatest benefit for their child's language development.

d. *One(reading)*

i. **Definition:** Parent reaction to/perspective about the one-utterance that they read. Do NOT use as a stand-alone code. Use the subcodes.

ii. One(reading) x Question x Unnatural

1. **Definition:** Parent identified the one-up question as feeling the most unnatural to say in the given scenario.

iii. One(reading) x Question x Natural

1. **Definition:** Parent identified the one-up question as feeling the most natural to say in the given scenario.

iv. One(reading) x Comment x Unnatural

1. **Definition:** Parent identified the one-up comment as feeling the most unnatural to say in the given scenario.

v. <u>One(reading) x Comment x Natural</u>
    1. **Definition:** Parent identified the one-up comment as feeling the most natural to say in the given scenario.
vi. <u>One(reading) x Direction x Unnatural</u>
    1. **Definition:** Parent identified the one-up direction as feeling the most unnatural to say in the given scenario.
vii. <u>One(reading) x Direction x Natural</u>
    1. **Definition:** Parent identified the one-up direction as feeling the most natural to say in the given scenario.
viii. <u>One(reading) x Greatest Benefit</u>
    1. **Definition:** Parent identified the one-up utterance as the utterance that would likely have the greatest benefit for their child's language development.

12. Reaction to strategies x Definitions

a. **Definition:** Parent reactions to definitions of language input strategies. Do NOT use as a stand-alone code. Use the sub-codes.

b. Gram(definition) x Agree
    i. **Definition:** Parent agrees/thinks the grammatical input strategy is helpful when it was described to them.

c. Gram(definition) x Disagree
    i. **Definition:** Parent disagrees/does not think the grammatical input strategy is helpful when it was described to them.

d. Gram(definition) x Depends
    i. **Definition:** Parent says that the helpfulness of the grammatical language input strategy depends (on the child, on language level, on preferences, etc.). If the parent says they agree with it as a strategy/uses it but that it depends on some other factor, double-code as agree/depends. If the parent says they don't like it as a strategy and wouldn't use it but see how it could be beneficial, double-code as disagree/depends.

e. Tel(definition) x Agree
    i. **Definition:** Parent agrees/thinks the telegraphic input strategy is helpful when it was described to them.

f. Tel(definition) x Disagree
    i. **Definition:** Parent disagrees/does not think the telegraphic input strategy is helpful when it was described to them.

g. Tel(definition) x Depends
    i. **Definition:** Parent says that the helpfulness of the telegraphic language input strategy depends (on the child, on language level, on preferences, etc.). If the parent says they agree with it as a strategy/uses it but that it depends on some other factor, double-code as agree/depends. If the parent says they don't like it as a strategy and wouldn't use it but see how it could be beneficial, double-code as disagree/depends.

h. One(definition) x Agree

i. **Definition:** Parent agrees/thinks the one-up input strategy is helpful when it was described to them.

i. One(definition) x Disagree

i. **Definition:** Parent disagrees/does not think the one-up input strategy is helpful when it was described to them.

j. One(definition) x Depends

i. **Definition:** Parent says that the helpfulness of the one-up language input strategy depends (on the child, on language level, on preferences, etc.). If the parent says they agree with it as a strategy/uses it but that it depends on some other factor, double-code as agree/depends. If the parent says they don't like it as a strategy and wouldn't use it but see how it could be beneficial, double-code as disagree/depends.

13. Do children understand more than they say?

a. **Definition:** Parent response to the question, "Do children understand more than they say?" Can be used as a stand-alone if it's not a simple yes/no response.

b. Understand more x Yes

i. **Definition:** Parent believes that children understand more than they say. Can be used in response to the question "Do children understand more than they say?" or used elsewhere if it comes up in the interview.

c. Understand more x No

i. **Definition:** Parent does not believe that children understand more than they say. Can be used in response to the question "Do children understand more than they say?" or used elsewhere if it comes up in the interview.

14. Best way to speak to child

a. **Definition:** Parent response to the question, "What do you believe is the best way to speak to your child to support their language development?" Use as a stand-alone if it does not fit with a subcode.

b. Best x Emotional relation

i. **Definition:** Parent's response to "What do you believe is the best way to speak to your child to support their language development?" has an emotional relation.

ii. **Example**: "Speak kindly, calmly."

c. Best x Vocabulary relation

i. **Definition:** Parent's response to "What do you believe is the best way to speak to your child to support their language development?" has vocabulary relation.

ii. **Example**: "Use simple words/words that he understands."

d. Best x Length relation

i. **Definition:** Parent's response to "What do you believe is the best way to speak to your child to support their language development?" has a length relation.

ii. **Example**: "Speak in short sentences, don't use too many words."

e. Best x Grammar relation

i. **Definition:** Parent's response to "What do you believe is the best way to speak to your child to support their language development?" has a grammar relation.
ii. **Example**: "Just stick to the important words; only include nouns/verbs," "Speak in full sentences."

f. Best x Quantity relation

i. **Definition:** Parent's response to "What do you believe is the best way to speak to your child to support their language development?" has a quantity relation.
ii. **Example**: "Speak as much as you can," "Narrate everything"

15. Personal concern with speech

a. **Definition:** Am I doing it right? Use when parent indicates uncertainty around their speech and how they should be talking.

16. Influence of expressive language concerns on language input

a. **Definition**: What type of expressive language does the parent want the child to achieve? Use when parent expresses that they want their child to be able to express themselves and communicate. Use as a stand-alone code or double-code with a subcode, if applicable.

b. Wanting child to speak verbally

i. **Definition**: Use when parent expresses that they want their child to be able to speak verbally/talk at all. Usually more applicable to parents of children who are nonspeaking

c. Wanting child to speak "correctly"

i. **Definition**: Use when parent expresses that they want their child to be able to speak "correctly," using proper grammar.
ii. **Contrastive Features**: This subcode is different than 'wanting child to speak verbally' because it is more focused on complexity/grammar of their child's language level. This code focuses more on the quality of their child's expressive language, rather than the quantity.

17. Influence of receptive language concerns on language input

a. **Definition**: Use when parent reports that they want their child to understand what they are saying.
b. **Example**: "I just hope that X can understand what I'm saying. That's why I try to keep things simple for him. If I see that he understands, that lets me know that I'm doing my job."

18. Negative connotations

a. **Definition**: Use when parent expresses negative feelings towards certain types of speech. Use as a stand-alone if subcodes do not fit.

b. Negative connotations to more simplified speech

i. **Definition**: Use when parent expresses negative feelings towards simplified speech.
ii. **Example**: "I try not to baby talk"; "I'd rather talk to them like they're people."

iii. **Contrastive Features**: This code is used when simplified speech (either telegraphic or shorter utterances) is spontaneously brought up in conversation. Do not use this code for the part of the interview when the parent is explicitly asked if they like the recommendation of telegraphic speech. Also do not use this code when parent says example simplified utterances are unnatural.

c. Negative connotations to more complex speech

i. **Definition**: Use when parent expresses negative feelings towards "complex"/grammatical full-length speech.

ii. **Example**: "Too wordy"

iii. **Contrastive Features**: This code is used when more complex speech (grammatical, full-length utterances) is spontaneously brought up in conversation. Do not use this code for the part of the interview when the parent is explicitly asked if they like the recommendation of grammatical speech. Also do not use this code when parent says example simplified utterances are unnatural.