ABSTRACT

A commonly used tool for assessing communicative-language skills in early childhood is indirect communicative language assessment through parent reports.

Even if these instruments are proved to be valid and reliable for assessing children's early language competence, parents often experimented issues during their compilation.

In our study, using a web-based parent-report survey, we assessed language development, socio-conversational skills and executive functions. Parents have completed questionnaires on assertiveness, responsiveness, and the executive function domains of inhibition, shifting, emotional regulation, working memory, and planning/organization. Data collection was conducted in person during educational meetings in early childhood centers with the support of a trained examiner (speech therapist), who recorded parents' issues during their compilation. Parents of 94 Italian monolingual children (45 Females, 47.87% of the total) aged 24 to 36 months have participated to this study.

Our results underline the importance of giving clear instructions to parents during the compilation of communicative-language questionnaires.

Our findings suggest high associations between Expressive Vocabulary and Socio-Conversational Skills (SCS) in both Typical Development and Late Talkers children. Furthermore, we founded that measures of executive functions were positively correlated with socio-conversational skills.

In addition, parents' confidence in their child's language abilities is highly correlated with their child's expressive vocabulary.

To sum up, our study aimed to evaluate early childhood communicative-linguistic and functional skills through indirect assessment questionnaires, with a focus on the difficulties perceived by parents while completing these surveys.

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1. Introduction

1.1 Early Childhood Language Development

It is widely documented that the emergence of language and the developmental trajectories of different language skills are characterized by considerable variability in timing, methods and learning strategies of children (Caselli et al., 2014). Learning how to talk is a complex and dynamic process involving certain neurobiological and phono-articulatory mechanisms that enable children to select and process input received from the environment and produce vocal elements (Majorano et al., 2023).

According to the neuro-constructivist model, development is the result of the influence of both intrinsic (physiological, psychological, and neural) and extrinsic (social and educational contest) factors (D'Souza et al., 2017). In this theoretical prospective, language development is the result of a complex interaction between genes and environment, in which innate predispositions target the attentional resources of infants towards particular types of environmental input, which act on the brain by modulating its organization and thus promoting learning (D'Amico et al., 2013).

It is also important to know that linguistic and cognitive processes interact mutually. In particular, vocabulary acquisition is linked to the development of more general cognitive skills, such as the ability to categorize reality and the ability to construct and represent meanings (Belacchi e Benelli, 2007). Word acquisition, for example, does not occur in an all-or-nothing process and words can be acquired, lost or retained in the process of learning. The stability of a word in child's vocabulary and the speed of processing and access to meaning depend on numerous factors, such as the imaginability of the word's meaning and its phonotactic characteristics, the age at which the word was acquired and its frequency of use, and general cognitive abilities such as the child's attention and memory (Gershkoff-stowe et al., 2013; Hollich et al., 2000; Rinaldi et al., 2004).

In fact, shared attention represents an important communicative antecedent of the emergence of language, as a context that makes possible the emergence of intentionality and the interaction between minds. Shared attention is also a sign of the evolution of early attentional functioning and a good predictor of language development (Majorano et al., 2023)

From birth, newborns are attracted to human voices and can produce units of sound. In detail, these initial vocal productions can be recognized within the first few weeks of life and vary depending on the infant's state (e.g., hunger, pain, comfort, well-being) (Guasti, 2017). There is evidence if favor of the fact that mothers often interpret these sounds, facilitating the development of the child's first communication system (Nouraey et al., 2021). Also, children use numerous vocalizations and symbolic gestures to create common ground with their communication partners. These communicative gestures, refined through reciprocal social interaction and regulatory behaviors, predict the development of language skills.

Looking at the early infants' stage development, from the 4th month, infants' vocal tract starts to look like that of an adult (Kent et al, 1995) and, at the 6th month, it is common that they achieved mandibular and lingual control and start to pronounce syllables. At this time, the vocalizations diversify into babbling (Zhmarich et al, 2014): the systematic use of canonic syllables (repeated CV-type syllables) in babbling enhances the precision and speed of articulatory movements and promotes the recognition of movements similar to those pronounced in new adult words that are acoustically like those already in the child's repertoire (Stoel-Gammon, 2011; Vihman et al., 2011).

Between 8th and 10th months, a child's vocalizations begin to reflect the language of their environment. Around 8-9 months, children seek to capture others' attention, focus on what is shown to them, and point their fingers to indicate objects they want. At 8-12 months, they point at objects, shake their head to indicate "no," wave goodbye, make sounds resembling words, and imitate adult voices. Most children say their first words between 10-12 months, typically associating these words with specific objects or situations (Guasti, 2017).

The first words produced have a very simple syllabic structure, usually consisting of reduplicated syllables, and a very limited repertoire of sounds, which usually repeat the characteristics of the sounds produced in preverbal utterances. Such words are "selected" by the child based on emerging phono-articulatory skills (Vihman et al., 2007). The first words are initially used in familiar and limited structured contexts, in later stages of development they are used more flexibly in different contexts.

Between the 18th and 24th month, when children produce approximately 100 words, they begin to combine them and to create sentences without any grammatical or syntactic rules (such as the concordance between singular and plural or gender). These sentences have a

primordial structure and are initially composed of two words (e.g., “go outside” or “more water”) (Guasti, 2006).

1.2 Late talkers: epidemiology and risk factors

Not all infants follow the language development trajectories mentioned in the previous paragraph. Indeed, 11–18% of children between the age of 18 and 36 months may experience significantly delayed lexical development, despite the absence of brain lesions, intellectual disability, or hearing impairments (Hawa et al., 2014; Rescorla., 2011; Farabolini et al., 2023). These children are often referred to as late talkers and may show reduced expressive and/or receptive language skills.

The label “late talker” does not entail a diagnostic value (Marotta et al., 2014). In fact, a high percentage of these children will close the gap with their typically developing peers within a year, aligning their language development trajectory with that of their peers and experiencing significant lexical improvement, thereby forming the group known as Late Bloomers (Sabbadini, 2015). These children, after the age of three perform within normal limits on linguistic tasks; however, even "late bloomers" are reported to have lower academic abilities than TD children who had a typical lexicon size during toddlerhood (Bleses et al., 2016; Rescorla, 2011). In addition, late bloomers may manifest mild and persistent language difficulties, especially in more demanding language tasks such as narrative production or reading comprehension. .

However, some late talkers will not catch up with their peers and, after the age of three, approximately 50% of them are likely to be diagnosed with a Language Disorder, recently labelled “Developmental Language Disorder” (DLD). This label has been introduced by CATALIZE consensus to describe children whose language disorder arises during development and is not acquired or linked to known biomedical conditions, such as brain injury, neurodegenerative diseases, cerebral palsy, or other genetic or neurological challenges (Sansavini et al., 2021; Bishop et al., 2017). Moreover, research suggests that the early identification of late talkers may have prognostic value (Rescorla, 2011).

A recent systematic review reports that risk factors for late language development are male gender, low birth weight, preterm birth, low parental schooling, low socioeconomic status (SES), having four or more children living in the same household, family history of language delay, father working outside the house all day, difficult temperament, intracranial

hemorrhage, brain injury and persistent otitis media reference. The same review claims that protective factors are: higher parental schooling, caregiver frequently talk to child, be single child, higher family income, maternal responsiveness, sociable temperament, good maternal mental health, cognitive nonverbal abilities in early childhood, daily readings with the child, opportunities for informal play with the child and having a primary care center for children (Bettio et al., 2019; Fisher, 2017).

Looking at evidence related to Italian-speaking children, a recent Italian study by Zuccarini et al. (2023) examined 30-month-old late talkers (LTs), either full-term or low-risk preterm. This work identified three distinct communicative profiles among these children: *severe*, characterized by a significantly limited receptive and expressive vocabulary; *moderate*, with a less impaired receptive vocabulary but still with a limited expressive vocabulary and *mild,* with a receptive vocabulary size similar to the moderate group but with only a partially limited expressive vocabulary. Children in the severe and moderate profiles demonstrated significantly lower performance in noun and predicate production, grammar, and cognitive skills compared to those in the mild profile. Additionally, the severe profile group exhibited lower abilities in verbal imitation and pragmatic skills. These findings suggest that children with delays in both expressive and receptive language face the most extensive challenges across both linguistic and non-linguistic domains.

1.3 Language developmental profiles between LT and TD: differences and similarities

Late talkers are children who produce fewer than 50 words at 24 months and do not combine them by 30 months but have typical cognitive development and no other sensory or neurological disabilities. (Bonifacio et al., 2010).

Language acquisition in Late Talkers (LTs) is influenced by a complex interplay of factors that distinguish their developmental trajectories from Typically Developing children. Understanding these factors is crucial for identifying at-risk children and providing targeted interventions. In fact, LTs typically present different linguistic, social and cognitive characteristics than their TD peers (Fisher, 2017; Desmaris et al., 2008)

As expected, LTs generally have a smaller vocabulary size than their TD peers, experiencing a delay in reaching the typical milestones not only of word but also of sentence productions (Sansavini et al., 2021).

In fact, when LTs start forming sentences, their syntax and grammatical structures are typically simpler, struggling with constructing complex sentences or using correct verb tenses, plurals, and other grammatical markers (Rescorla, 2011).

It is also known LTs have also a limited phonological vocabulary and might have difficulties with the correct articulations of the sounds of language: in fact, their speech is often less clear or intelligible compared to the one of their TD peers. Their talk is also full of phonological processes; for example, dropping the ends of words or simplifying consonant clusters (e.g., saying "nana" instead of "banana") (McIntosh et al., 2008).

Another widely studied factor is the contribution of the SES to development trajectories, indeed, some studies have shown that the quality and the quantity of parental input is influenced by family SES, that affects language development (Hoof et al., 2003).

As lexical skills, also gestures are important to consider in language development: some studies suggest that a scarce use of pointing with the index fingers at 12 months predicted a language delay at 24 months (Lüke et al., 2017). Another study by O'Neill et al. (2019) found that receptive language abilities, frequency of gesture use and symbolic comprehension assessed in children aged 2-3 years were strong predictors of language outcomes at ages 4-5 years. This study also revealed that LTs with both receptive and expressive language delays had poorer language outcomes compared to those with only expressive delays.

Late talkers may also show a delay in socio-conversational skills, struggling with the use of language for social purposes. Bonifacio et al. (2010, 2007), find out that LTs present a delay in the development of assertive and responsive conversational skills using a parent report questionnaire (ASCB), proving that pragmatic abilities play a crucial role in the language acquisition process.

Furthermore, working memory, particularly the phonological short-term memory (PSTM) and the verbal working memory (VWM), have proved to be consistent predictors of expressive vocabulary and may be significant factors in the language delays observed in late talkers (Newbury, 2014). The same study found also that Late Talkers exhibit difficulties in shifting and in emotional control.

1.4 Development assessment tools in early childhood

Communicative-language skills can be assessed using various approaches, e.g., by recording free speech in natural situations, directly assessing language in test situations - using various standardized language scales - or indirectly using questionnaires or checklists (Marjanovič-Umek et al, 2011).

The optimal approach for assessing a child's lexicon before the age of three is still debated, and there is a shortage of standardized tools for identifying late language emergence. (Feldman et al., 2005; Bello et al., 2012).

One of the most used direct tools to assess language production and comprehension is "PinG test: Parole IN Gioco" for children aged 19 to 37 months (Bello et al., 2010). The test consists of two sets of color pictures dedicated to Comprehension and production of nouns and Comprehension and production of predicates (actions, adjectives, qualities, adverbs).

The short attention span and high distractibility typical of toddlers create considerable challenges when using structured language assessments to evaluate their language competence, potentially reducing the reliability and validity of these assessments (Feldman et al, 2005). A recent method to record and collect a child's language in natural situations is the LENA device (Language Environment Analysis System; Greenwood et al., 2011). LENA is associated with a software that, through a series of algorithms, performs a quantitative analysis of the input received and that produced by the children. Based on the data collected, LENA allows an automated analysis of three main linguistic indicators: the number of words produced by the adult, the number of vocalizations produced by the child wearing the recorder and the number of conversational turns, also allowing for the analysis of several measures related to the child's daily environment. Recently validated for the Italian population (Bastianello et al., 2023), this device can be very useful to collect data in natural situations although it does not identify the child's words separately because it counts total vocal productions, including both preverbal utterances and words (Majorano et al., 2023).

Child language also can be assessed indirectly by parents. The inclusion of parents as evaluators of a toddler's linguistic competence is essential, especially during the early stages of development, when a child's speech is primarily limited to interactions within the family environment. At this stage, toddlers often use language forms in unpredictable and inconsistent ways, making parental insights invaluable for a more accurate assessment (Dale et al., 1989).

Historically, children's speech has been documented through language diaries, which, while often accurate and informative, tend to be unsystematic and retrospective. These diaries may contain both objective and subjective data, often reflecting particular characteristics of the children's parents (e.g., level of education, goal orientation, extroversion) (Bornstein et al., 1998).

Researchers had tried to limit the weakness of keeping diaries, developing methods to assess children's language and behaviors through structured questionnaires and checklists (Marjanovič-Umek et al., 2011).

A worthwhile tool to assess child's vocabulary is *The MacArthur-Bates Communicative Development Inventory* (Fenson et al., 2000). The MacArthur-Bates Communicative Development Inventories (MB-CDI) is a standardized tool used to assess language development in toddlers. These inventories help researchers and clinicians understand and measure early communicative behaviors, such as vocabulary comprehension, production, and use of gestures. The CDIs are typically completed by parents or caregivers, who report on their child's language abilities. The inventories cover various aspects of language development, including Words and Gestures (addressed to infants from 8 to 17 months) and Words and Sentences (for toddlers between 18 and 36 months).

Over the past few years, the inventories have been developed and adapted in different languages, included Italy. In Italy, the MB-CDI was firstly adapted on an Italian sample by Caselli et al. in 1995 (*Il primo vocabolario del bambino: gesti e parole* and *Il primo vocabolario del bambino: parole e frasi*).

According to a systematic review (Desmarais et al., 2008), the MB-CDI can identify Late Talkers if their lexical score is below the 10th centile from the age of 24 months and/or there aren't any word combinations after the age of 30 months.

Parent reports as MB-CDI are valuable for capturing a comprehensive overview of a child's language development, including aspect such as gestures, vocabulary, and grammar. However, they have limitations when it comes to addressing specific questions about the phonological form of individual words, because parents typically mark a word as "said" if the child produces any phonologically appropriate form, which may not capture the detailed phonological nuances (Frank et al., 2021).

Another widely used questionnaire is *Le Abilità Socio-Conversazionali del Bambino (ASCB)* (Bonifacio et al., 2017) aimed at children aged between 12 and 36 months. It collects

information on the level of development of verbal and non-verbal socio-conversational skills in familiar and routine contexts, containing questions on the Assertiveness and Responsiveness scales.

Used to integrate language assessment, another commonly used tool is *Behavior Rating Inventory of Executive Function–Preschool Version (BRIEF-P)*, a standardized rating scale designed to specifically measure the range of executive function in preschool-aged children (from 2 to 5.11 years) that allows the systematization of data from the structured observation conducted by parents or teachers on the child's behavior. It is composed of five independent and empirically derived clinical scales, which measure the factors mainly involved in executive difficulties detected in pre-school age: Inhibition, Shift, Emotion Regulation, Working Memory and Planning/organization (Marano et al., 2014).

1.5 Parent-report methodology to measure children's developmental abilities

There are several research in favor of using parent report tools to assess a child's first language. In detail, when parents are asked to describe their children's emergent language skills through interviews, questionnaires and checklists, there is a trend of results in favor of the reliability related to the information they provide. Primary caregivers typically monitor their children's early language milestones closely and are able to track the development of their child's emerging skills across various daily activities (Fenson et al., 1994). Several research across different socio-economic and cultural settings show that parent reports through standardized checklist are valid and parents are good predictors of their children's language development (Feldman et al. 2000, 2003; Marjanovič -Umek et al. 2008). In particular, Bates and Carnevale (1993) found high correlations between the language measured in parent reports and the number of words uttered during lab observation audio recordings. However, an Italian study (Salerni et al., 2007) shows that parental reports and language sampling do not give the same outcomes, suggesting that the level of accuracy in both direct and indirect observation methods can vary significantly depending on the specific lexical items that make up children's early productive vocabularies. The same study suggests employing both direct and indirect assessment, at least in toddlerhood, when the vocabulary is still limited.

Even though every MB-CDI questionnaire's topic contains specific instructions about the compilation, many researchers made sure to verbally provide parents with instructions before compilation in order to increase the consistency of the indirect assessment.

For example, in their recent study in Maltese population, Gatt et al. (2023) educated caregivers about the purpose of the word checklist, taking them through the bilingual guidelines, underlining that only words used spontaneously by the children were to be recorded.

Similarly, Thal et al. (1999), in their study reviewed the MB-CDI with the parent before the compilation session, describing the inventory and the written instructions. This choice was taken to be sure that parents understood that they had to mark a word only if the child pronounced it spontaneously, no matter potential mispronunciations.

Different researchers who administered the MBC-DI in the digital version also ensured that parents were informed that the questionnaire was correctly completed. In particular, in a study on the Norwegian population (Kristoffersen et al., 2013), two research assistants were ready to answer questions from the participants as soon as the survey was available. These two research assistants could be contacted through e-mail or telephone, answering within 24 hours. In this study, providing contact to the parents during the completion of the questionnaire gave the researchers a chance to hear their reactions to the study and analyze the difficulties they encountered. Several comments were related to the choice of vocabulary items, particularly about dialect differences that made the forms challenging for some parents to complete (participants came from different Norwegian regions). Their responses to those parents were consistent with the general guidelines for CDIs. In the same study, in some cases, parents felt that the vocabulary items did not accurately reflect their child's actual language abilities. In addition, a potential source of error arises from parents who gave up the compilation because their children were in the youngest age group, resulting in fewer items to report on: in fact, the response rate tended to be lower for younger children than for older ones.

In their recent study, De Mayo et al. (2021) provided parents detailed instructions related to both the words and gestures, and words and sentences digital version of the MB-CDI form. These instructions, presented in both written and pictorial formats, assisted parents in accurately determining whether their child comprehends or produces a word. Acceptable word forms include child-like or dialect-specific variations, though imitations are excluded.

Another reason on the relevance of involving parents in the assessment of young children is their level of concern regarding their child's language abilities. In fact, parental concern about language development is an often overlooked but potentially significant factor, as research has demonstrated its role in facilitating the early identification of developmental delays and language impairments (Wallisch et al., 2020; Sim et al., 2019).

Parental concerns have been identified as a predictive factor for DLD. Different studies have shown a significant correlation between parents expressing concerns about their child's language development and the likelihood SLI diagnosis (e.g. Bishop et al., 2014). Notably, research has shown a significant difference between children whose parents expressed concerns or was involved with Speech and Language Therapy (SLT) and those without such indicators. This finding supports the validity of parental concern as an important factor to consider when diagnosing Specific Language Impairment (SLI).

Furthermore, a recent study (Solgi et al., 2022) has demonstrated a significant association between parental concerns and the outcomes of early intervention developmental services. These findings have shown that parents' concerns play a critical role in key stages of Early interventions processes, including evaluation and enrollment in services.

1.6 Web-based adaptation of assessment tools

The digital adaptation of assessment tools marks a critical advancement in research methodology, particularly in a post-pandemic era that has witnessed a rise in telemedicine and telerehabilitation (Pvru et al., 2020)

Although there are a few studies on the validity of remote communicative-language assessment administration compared in-person administration, a recent cross-sectional study demonstrated the validity of a neuropsychological assessment conducted in-person and remotely by tele-testing, showing no significant differences on the studied variables across the two methods (Hamner et al., 2022), except for a section of this assessment that included parent-reported symptoms showed a different result in one out of the eight assessed items (children assessed remotely exhibited lower cognitive tempo scores compared to those assessed in person).

Different digital versions of the MacArthur-Bates Communicative Development Inventories (MB-CDI), one of the most used tools to assess language development in early toddlerhood, have been developed in the last years.

One of the first digital adaptations of the MB-CDI was carried out by a Norwegian study (Kristoffersen et al., 2013), that paved the way to other similar research, proving the use of web-based forms to be significantly more time-efficient and cost-effective compared to traditional paper-based forms.

De Mayo et al. (2021) also developed the web version of the MB-CDI, collecting data from children across various socio-cultural and economic backgrounds. Unfortunately, they found that over half of the completed assessments from communities with lower levels of educational attainment had to be excluded due to rushed or incomplete responses.

Also, many other web-based adaptations have been developed in different languages, e.g., in Italian (Farabolini et al., 2023), in Hebrew (Gendler-Shalev et al., 2021) and in American Signs Language (Caselli et al., 2020).

2. Aims of the current research project

In this study, we investigated the language-communicative and cognitive skills of early infancy through a web-based parent survey, and we examined parents' difficulties during the compilation in presence of a trained examiner.

The aims of the study are as follows:

(Q1) What are the parent's issues and questions during the compilation of the surveys? Are there any differences between LT and TLD's parents' compilations of the satisfactory questionnaire?

(Q2) (Q2A) Are there any associations between the variables studied of the three surveys? (Q2B) What are the associations between the studied variables among late talkers and TD children separately? (Q2C) Are there any differences on the variables studied of the three surveys between children with and without LLE?

(Q3) Are there any associations between the studied variables and the parent issues related to the survey's satisfactory ratings?

As we'll discuss in paragraph 2.2, we collected data in early childhood services, during dissemination meetings on language development. For this reason, our aim was also to make parents aware about late language emergence.

3. Methods

In order to increase the scientific validity of this research, the current study has been preregistered on OSF (Open Science Framework) (see Appendix 1 for the preregistration). Using the g power analysis, we calculated the sample size of this study, that requires at least 84 compilation to be statistically significant (setting an alpha error=0.5; 1-beta error=0.95; r=0.3; two tails analysis).

3.1 Participants

Parents of 94 monolingual Italian children (respectively: 92 mothers and 24 fathers, in 12 cases the compilation was carried out by both parents) aged 24 to 36 months (age: mean = 29.43 months; F = 45, 47.87% of the total) with no cognitive, genetic or sensory disabilities participated to this study (see table 1).

Survey	Studied variable	Mean	SD
MB-CDI	Age	29,43	4,06
	Maternal education	16,47	3,30
	Paternal education	14,89	3,68
	Expressive vocabulary	54,07	30,99
ASCB-SCS	Assertiveness	56,97	6,94
	Responsiveness	40,57	5,79
BRIEF-P-EFs	Total EF	143,41	18,29
	Inhibition	34,69	3,26
	Shift	25,17	5,62
	Emotional regulation	23,33	4,09
	Working memory	38,78	3,44
	Plan/ organization	21,45	6,18
	SEX	F = 45 Tot= 94	

Table 1. Characteristics of the total sample that participated to this study.

Data were collected in Italy, from Emilia-Romagna and Marche regions. In detail, parents affirmed to be resident in either Rimini (N=48), Ancona (N=22), Macerata (N=13), Forlì-Cesena (N=5), Pesaro Urbino (N=4), Ravenna (N=1) or Teramo (N=1).

Data collections meetings were mainly conducted in services dedicated to early childhood care, in particular in private and public nursery schools, in libraries, in bookshops and in family centers.

3.2 Procedures

Data collection sessions were conducted in childhood services, targeting parents of children aged 18 to 36 months. To gather as much data as possible as well as to provide an introduction to early communication-language development to parents who participated in our study, we organized free dissemination events in nursery schools, libraires, public health centers. We disseminate these data collection events through digital informative posters explaining the research purpose and procedures (Fig. 1).



Figure 1: Poster used to promote the data collection meetings. The Rectorate has approved the inclusion of the University logo on our informative poster.

Each meeting consisted of three phases: (1) short presentation of the project, (2) data collection session and (3) educational and awareness session.

Parents were asked to fill in a web-based communicative-linguistic assessment survey in the presence of a trained examiner (speech therapist) who recorded their difficulties and answered their questions during compilation. Additionally, parents filled in a web-based satisfactory rating questionnaire related to the compilation's experience.

Both surveys were carried out using Kobo Toolbox, an open-access and user-friendly survey software, as used in Farabolini et al. (2023). During the dissemination events, parents accessed the surveys by scanning two different QR codes to fill in the two surveys separately. Every parent's difficulty during the survey's compilation had been classified by the nature of their issues: (1) difficulty in selecting the appropriate answer from the available options, (2) concern about the clinical relevance of the question, (3) difficulty in understanding the content of the question and (4) interactions not included in the above.

At the end of the dissemination event, parents received an educational handout about language development, which included a focus on developmental milestones and advice on how to encourage their child's communicative abilities. In the educational phase of the data collection meeting, parents were informed about the factors related to language development and its prerequisites. They receive an education related to the awareness of the key milestones a child should reach before starting to speak, such as joint attention, symbolic play, eye contact, and turn-taking (Bortolini et al., 2014).

After providing the education of language development in detail, the speech therapist provided parents with advice on how to interact with their child through observation, waiting, and listening, as well as how to best stimulate language development, offering numerous practical examples of activities. At the end of these meetings, parents had the opportunity to ask the speech therapist questions about their child's communicative-linguistic development.

3.3 Instruments

The communicative-language protocol followed the research design developed in Farabolini et al. (2023). The first part of the survey contains information about the age target, the ethical approval and the anonymity of the survey. Then, parents were asked to give children's personal information such as sex, birth date and city of domicile. Before the beginning of the compilation, parents were asked whether their child had shown any delays

in motor development or had been diagnosed with any neurodevelopmental or neuropsychiatric disorders.

Firstly, parents filled in "Abilità Socio-Conversazionali del Bambino (ASCB)" (Bonifacio et al., 2017), a parent-report survey aimed to assess children's Socio-Conversational Skills (SCS). The survey contains 24 questions about the responsive or assertive behavior of the children; for each question parents were asked to rate the behavior of their children on a 5-point scale ranging from 1 to 5: 1 "mai" (*never*), 2 "quasi mai" (*rarely*), 3 "qualche volta" (*sometimes*), 4 "spesso" (*often*), 5 "sempre" (*always*).

Then, to assess the communicative-linguistic development of their children, parents filled in the web-based short form of the Italian adaptation of the MacArthur Bates — Communicative Developmental Inventory (Caselli et al., 2015). Parents had to report the words said by their children by choosing from a 100-words checklist and to assess their children's morphosyntactic abilities answering questions about the pronounced sentences' complexity. Additionally, parents wrote their child's longest sentence, assessed their child's pretend play through questions ranging 1 to 3 (from "non ancora" (not yet) to "spesso" (often)) and filled in an information chart with the anamnesis.

Regarding the executive functions assessment, parents answered the web-based Italian version of the Behavior Rating Inventory of Executive Function–Preschool Version (BRIEF-P) (Marano et al., 2014) using a Likert-type frequency scale with three response options: "mai" (*never*), "a volte" (*sometimes*), and "spesso" (*frequently*). BRIEF-P is composed of 63 items covering five developmental areas (Inhibition, Emotional Control, Flexibility, Working Memory, and Plan/Organize): we extracted data for each sub-test as well as a total EF score.

The web-based satisfactory rating survey contained questions about the difficulty perceived in the compilation of the entire protocol and each of the three surveys; the importance of the presence of an expert during the compilation; and the perception of the difficulty level if the compilation was done remotely (See Fig. 2 for the questions). Each of these questions was ranked 0 to 10, where 0 meant "per niente difficile" (*not difficult at all*) and 10 meant "molto difficile" (*very difficult*).

Each of these two digital surveys included a section dedicated to any comments or difficulties reported by the parents.

1. Quanto è stato difficile compilare il questionario in autonomia? *Dove 0=per niente difficile 10=molto difficile*	1. How difficult was it to complete the questionnaire independently? *Where 0=not difficult at all 10=very difficult*
2. Quanto ritiene che la presenza di uno specialista sia stata d'aiuto per la compilazione del questionario? *Dove 0=per niente difficile 10=molto difficile*	2. How helpful do you think the presence of a specialist was when filling out the questionnaire? *Where 0=not difficult at all 10=very difficult*
3. Pensa che sarebbe stato più difficile se la compilazione fosse avvenuta da remoto? *Dove 0=per niente difficile 10=molto difficile*	3. Do you think it would have been more difficult if the compilation had been conducted remotely? *Where 0=not difficult at all 10=very difficult*
4. Valuti il livello di difficoltà del primo questionario (ASCB) *Dove 0=per niente difficile 10=molto difficile*	4. Please, rate the level of difficulty of the first questionnaire (ASCB) *Where 0=not difficult at all 10=very difficult*
5. Valuti il livello di difficoltà del secondo questionario (PVB) *Dove 0=per niente difficile 10=molto difficile*	5. Please, rate the level of difficulty of the second questionnaire (MB-CDI) *Where 0=not difficult at all 10=very difficult*
6. Valuti il livello di difficoltà del terzo questionario (BRIEF-P) *Dove 0=per niente difficile 10=molto difficile*	6. Please, rate the level of difficulty of the third questionnaire (BRIEF-Ps) *Where 0=not difficult at all 10=very difficult*

Figure 2. Table showing the questions from the satisfaction questionnaire, with the Italian version on the left and the English translation on the right.

3.4 Measures

From the questionnaires, we extracted data for the target variables to answer our research questions.

Specifically, to measure expressive vocabulary, we analyzed data from the 100-words vocabulary checklist of the Italian version of MB-CDI (MacArthur Bates — Communicative Developmental Inventory,), which is a list of words where parents have to mark the target words produced by their child. Each word of this checklist was coded dichotomously as either 0 (the word is produced) or 1 (the word is not produced). Raw scores (which are the sum of the words produced by a child) words score has then been compared with the

normative data to determine the corresponding percentile score of the child. The expressive vocabulary score provides insights to the child's communicative-language developmental profile: if the child falls below the 10th percentile is considered as Late Talker (Desmarais et al., 2008). From the informative chart of the MB-CDI we also extracted the parental (both maternal and paternal) educational measure that is their years of schooling, and the parents' confidence in their child's language abilities through the question "avete qualche preoccupazione sulle abilità communicativo-linguistiche del vostro bambino?" (*Do you have any concerns about the child's communication and language skills?),* that was coded as either 1 (affirmative answer to the question) or 2 (negative answer to the question).

From the ASCB (Abilità Socio-Conversazionali del Bambino; Bonifacio et al., 2017), we extracted the measures of Socio-Conversational Skills (SCS), a survey addressing child's pragmatic skills within the interaction with their caregiver, measured with specific questions (labelled with "A" for assertiveness and "R" for responsivity). We assessed the assertiveness, which comprises the ability to initiate conversations and make request through spoken words or gestures, and the responsiveness, which is the ability to react appropriately to what the other person says or does during the conversation and maintain topics for the successive turns. Parents had to rate each item according to the perceived frequency of occurrence (where 1= never, 2= almost never, 3= sometimes, 4= often, and 5= always). Then, we calculated the average scores of the questions related to assertiveness (15 questions) and responsiveness (10 questions). By comparing these results with the normative data, we were able to determine the standard deviation attributed to the child's profile.

We also explored the measures of the executive functions (EFs) through the Behavior Rating Inventory of Executive Function (BRIEF-Ps (Marano et al., 2014)) survey. This questionnaire includes 16 questions related to Inhibition, defined as the ability to control impulses and regulate behavior; 10 focused on Shifting, which is the capacity to shift attention ion across different situations; 10 addressing the Emotional Regulation, that is the ability to modulate emotional responses appropriately with situational demands; 17 concerning the working memory, that is the ability to keep the information needed to complete the task; and 10 related to Planning and Organization, that is the ability to manage both presents and future task requirements within the context. Parents answered these questions using a 3-point scale where 1= "mai" (*never*), 2= "quasi mai" (*almost never*), 3= "spesso" (*often*): after summing the scores for each question, we compared the total score

for each scale with the normative data, assigning a percentile rank to the child's profile. In the same way, adding up all the scores of the previous scales, we have also calculated the Total Executive Function Score.

4. Statistical analysis

To answer the (Q1), after collecting all the parental issues and difficulties during compilation, we categorized the nature of the questions they asked to the examiner without carrying out any quantitative analyses.

In order to answer the other research questions, we used SPSS to carry out the statistical analyses.

Specifically, to investigate the differences between LTs and TLD's parents' answers to the satisfaction survey (Q1) and to the communicative-language protocol (Q2C) we carried out non-parametric statistics, using the Kruskal Wallis Test.

We also used non-parametric statistics to answer (Q2A) and (Q3), specifically the Spearman rank correlation to test the association between all the variables we wanted to study in the research question.

5. Results

After collecting all the compilation data, we analyzed them following the standardized scores, identifying LTs if they had an MB-CDI lexical score below the 10th centile.

As can be seen in Tab. 2, 18 children (19.15% of the total sample) showed a late language emergence. In TLD group females are 50% of the total, while in LT group the incidence is lower (38.89%). See Table 3 for the results of the satisfaction questionnaire across LTs and TLDs.

		TLDs (Tot = 76)	**LTs (Tot = 18)**	**TOTAL SAMPLE (Tot = 94)**
	Age	29.32 (4.19)	29.89 (3.56)	29.43 (4.06)
MB-CDI	Maternal education	16.59 (3.41)	15.94 (2.82)	16.47 (3.30)
	Paternal education	15.11 (3.53)	14.00 (4.23)	14.89 (3.68)

	Expressive vocabulary	47.99 (27.10)	3.28 (2.95)	39.43 (30.11)
	Confidence related to child's language development	1.84 (0.5)	1.61 (0.37)	1.80 (0.40)
ASCB-SCS	Assertiveness	-0.67 (0.99)	- 1.88 (1.51)	-0.89 (1.20)
	Responsiveness	-0.53 (1.02)	-1.95 (1.78)	-0.80 (1.32)
BRIEF-P-EFs	Total EF	97.30 (4.01)	97.56 (2.20)	97.35 (3.72)
	Inhibition	88.33 (18.32)	90.89 (13.94)	88.82 (17.52)
	Shifting	96.91 (5.29)	98.00 (1.24)	97.12 (4.81)
	Emotional regulation	92.79 (14.45)	90.67 (14.35)	92.38 (14.38)
	Working memory	95.33 (9.42)	95.33 (8.57)	95.33 (9.22)
	Plan/ organization	92.22 (11.39)	95.83 (3.99)	92.91 (10.47)
	SEX	F= 38 50% of the total	F=7 38,89% of the total	F=45 47,87% of the total

Table 2. Results of the parent report splitting the total sample in two groups (TLD = typical language development and LTs= late talkers) though the Expressive Vocabulary score. LTs were identified if they had a MB-CDI expressive vocabulary below the 10th centile.

	LTs (Tot = 18)	**TLDs (Tot = 76)**	**TOTAL SAMPLE (Tot = 94)**
Perceived difficulty during the compilation of the questionnaire	3.06 (2.18)	3.18 (2.65)	3.16 (2.56)
Perceived utility of the examiner's presence	6.17 (3.43)	5.45 (3.30)	5.59 (3.32)
Perceived difficulty if the compilation had been done remotely	2.28 (2.78)	3.37 (3.25)	3.16 (3.18)
Perceived difficulty in ASCB-SCS	3.00 (2.66)	3.00 (2.44)	2.73 (2.47)

Perceived difficulty in Italian adaptation of MB-CDI	3.50 (3.05)	2.49 (2.54)	2.68 (2.66)
Perceived difficulty in BRIEF-Ps	3.50 (2.94)	3.51 (3.14)	3.51 (3.09)

Table 3. Satisfaction questionnaire's results across TLDs and LTs

(Q1) What are the parent's issues and questions during the compilation of the surveys? Are there any differences between LT and TLD's parents' compilation difficulties and comments?

To answer this question, a trained examiner collected every question or difficulty shown by parents during the compilation of the communicative-linguistic protocol, which included the ASCB survey, the Italian adaptation of the MB-CDI (PVB) and the BRIEF-P questionnaire. In *Appendix 2*, the parents' questions during the completion of the questionnaire are provided.

The highest number of difficulties were recorded in the PVB questionnaire (54 questions). The section of the questionnaire where parents had more difficulties was the *vocabulary checklist* section (35 questions). In this section, parents had mostly difficulties in understanding instructions of the checklist. In fact, mother and father asked if they could mark the production of animal's name in case their son named it with an onomatopoeia (e.g. "Instead of saying "cane" *(dog)* she says "baubau", can I mark it anyway?") 9 times. Other recurring questions were related to the possibility to mark a word even if their child pronounced incorrectly (e.g. "Instead of saying "scopa" (*broom*) he says "copa", can I mark it?") or a synonym (e.g. "can I mark "dormire" (dreaming) if he pronounces "nanna"?") on 9 occasions. Some parents also asked 5 times if they could fill in the checklist even if their child produces a gesture instead of the relative word and on 5 occasions they asked to mark the words that their child understand but doesn't produce (e.g. "my son know who "poliziotto" (*policeman*) is, but he didn't ever pronounce it, can I mark it anyway?" or "my child knows every word on the list, but he doesn't produce it, can I still mark it?").

In the PVB questionnaire, parents also showed common difficulties in *sentence complexity* section: particularly, in 7 occasions, they had difficulties in choosing the correct sentence production type (e.g. if my child pronounces "do mella a bimba" *(give 'dy baby)* instead of

"do la caramella alla bimba" (*I give a candy to the baby*) or "mella bimba" (*'dy baby*), what sentence should I mark?).

They also showed difficulties in *child behavior* section: in particular, 5 parents refers that the options "non ancora" (not yet) and "spesso" (often) are not representative of the relative questions (e.g. my daughter no longer uses gestures, but in my opinion "non ancora" (not yet) is not the best answer to give; because she does not indicate the object she wants, she just names it).

Several difficulties were also recorded in the ASCB questionnaire: in particular, 6 parents had difficulties in answering the question using the proposed options in the 7th ("while we are doing something together, my son asks me if he wants to change an activity") and 10th ("during a conversation my son keeps the same topic we are talking about for two or more exchanges") questions (e.g. in the 7th question a mother asked "he takes me there but he doesn't ask me, what do I say?" and in the 10th question "my son still can't carry on a conversation, what should I mark?"). Other common difficulties in answering the question using the proposed options were recorded in the 4th ("my son asks questions"- 4 questions recorded) 5th ("during daily activities, my son starts conversations with me" - 3 questions recorded) and 6th ("when I ask my son a question, he answers me" - 3 questions recorded) questions: most of parents' difficulties were related to their children's inability to carry on a conversation and ask questions.

Finally, in the BRIEF-P questionnaire, 26 difficulties were recorded: most parents asked for information about the content of the questions and on how to answer these using the proposed options.

At the end of the survey, parents could leave comments and observations in a dedicated box. 5 of them complained about the length of the communicative-linguistic questionnaire while 2 wrote that they were satisfied to have participated in this study because it was an important opportunity for them to reflect on their child's language development.

Looking at compilations across children with and without LLE, in the satisfactory questionnaire, we carried out non-parametric statistics and we used the Kruskal Wallis Test. As can be seen in Tab 4., we found non-significant differences across children with and without LLE (namely: "How difficult was it to complete the questionnaire by yourself?"; $H(1)=0.002$, $p= 0.961$; "How do you feel that the presence of a specialist was helpful in completing the questionnaire?"; $H(1)= 0.927$, $p= 0.336$; 3rd "Do you think it would have

been more difficult if the compilation had been done remotely?"; H(1)= 1.488; p= 0.336; "Please, rate the difficulty level of the first questionnaire (ASCB)", H(1)= 0.211, p= 0.646; "Please, rate the difficulty level of the second questionnaire (PVB); H(1)= 1.523, p= 0.217, "Please, rate the difficulty level of the third questionnaire (BRIEF-P)"; H(1)= 0.002, p = 0.965).

Test Statistics [a, b]

	Perceived difficulty during the compilation of the questionnaire	Perceived utility of the examiner's presence	Perceived difficulty if the compilation had been done remotely	Perceived difficulty in ASCB	Perceived difficulty in Italian adaptation of MB-CDI	Perceived difficulty in BRIEF-Ps
Kruskal-Wallis H	0,002	0,927	1,488	0,211	1,523	0,002
df	1	1	1	1	1	1
Asymp. Sig.	0,961	0,336	0,223	0,646	0,217	0,965

a. Kruskal Wallis Test

b. Grouping Variable: LLEvsTD_coded_lle_is_1_td_is_2

Table 4. Kruskal Wallis test on the satisfaction questionnaire across child with and without LLE

(Q2A) Are there any associations between the variables studied of the three surveys?

A statistical analysis was conducted to explore the relationships between the related variables: expressive vocabulary, age, sex, assertiveness (ASSERT), responsivity (RESPON), maternal education, paternal education, inhibition (I), shifting (S), emotional control (RE), working memory (ML), plan/organization (PO), total score of BRIEF-Ps (TOTAL_STAND) and the confidence related to child's language development (Confidence to child's lang_dev). In order to investigate these associations, we used Spearman's rank-order correlation (Spearman's rho), a non-parametric test that measures the strength and direction of the association between two ranked variables. The table shown in Tab. 5 includes significant correlations between certain variables. Statistically significant positive correlations can be found between expressive vocabulary and SCS (assertiveness: $r = 0.415$, $p < 0.001$; responsivity: $r = 0.393$, $p < 0.001$)) and confidence related to child's language development ($r = 0.267$, $p = 0.009$). Age isn't statistically correlated to any of the studied variables.

As can be seen, sex is positively correlated to confidence related to child's language development (r=0.270; p=0.008) and negatively to some variables included in EFs (Shifting: r= -0.409, p<0.001; emotional control: r= -0.313, p= 0.002, working memory: r= -0.244, p=0.018; total score of EFs: r= -0.363, p< 0.001).

The two measures of SCS are reciprocally correlated (r= 0.585, p<0.001) but did not correlate with age (Assertiveness: r= 0.034, p= 0,749; responsivity: r= 0.196, p= 0.059) nor with sex (Assertiveness: r=0-.066, p=0.53; responsivity: r= 0.033, p= 0.725). However, there are correlation between certain EFs and assertiveness (shifting: r= 0.247, p= 0.016; emotional regulation: r=0.217, p=0.036) as well as responsivity (working memory: r= 0.290, p= 0.005; plan/organization: r= 0.310, p= 0.002; total score of EFs: r= 0.026, p= 0.0028).

Finally, measures of EFs are positively correlated with each other.

			EXPR VOC	AGE	SEX	ASSE R	RESP	MAT EDU	PAT EDU	I	S	RE	ML	PO	TOTAL . STAN D	Confid ence to child's lang_d ev
Spe arm an's rho	EXPR_ VOC	Correlati on Coefficie nt	1	0,114	0,176	,415**	,393**	0,196	0,076	-0,059	-0,035	0,029	0,058	-0,048	-0,002	,267**
		Sig. (2-tailed)		0,275	0,09	0	0	0,058	0,464	0,573	0,739	0,784	0,576	0,643	0,983	0,009
	AGE	Correlati on Coefficie nt	0,114	1	-0,053	0,034	0,196	0,131	0,012	-0,042	-0,017	-0,131	0,175	-0,033	-0,003	-0,064
		Sig. (2-tailed)	0,275		0,612	0,749	0,059	0,21	0,907	0,687	0,874	0,209	0,092	0,754	0,98	0,54
	SEX	Correlati on Coefficie nt	0,176	-0,053	1	-0,066	0,033	-0,076	0,076	-0,136	-,409**	-,313**	-,244*	0,039	-,363**	,270**
		Sig. (2-tailed)	0,09	0,612		0,53	0,752	0,466	0,469	0,19	0	0,002	0,018	0,708	0	0,008
	ASSE R	Correlati on Coefficie nt	,415**	0,034	-0,066	1	,585**	0,139	-0,034	-0,018	,247*	,217*	0,132	0,092	0,144	0,06
		Sig. (2-tailed)	0	0,749	0,53		0	0,181	0,743	0,865	0,016	0,036	0,206	0,375	0,165	0,568
	RESP	Correlati on Coefficie nt	,393**	0,196	0,033	,585**	1	0,116	0,074	0,13	0,144	0,114	,290**	,310**	,226*	0,14
		Sig. (2-tailed)	0	0,059	0,752	0		0,264	0,479	0,212	0,168	0,275	0,005	0,002	0,028	0,179
	MAT EDU	Correlati on Coefficie nt	0,196	0,131	-0,076	0,139	0,116	1	,259*	0,06	0,047	0,005	0,136	0,053	0,046	-0,036
		Sig. (2-tailed)	0,058	0,21	0,466	0,181	0,264		0,012	0,564	0,651	0,964	0,19	0,615	0,657	0,733
	PAT EDU	Correlati on Coefficie nt	0,076	0,012	0,076	-0,034	0,074	,259*	1	-0,075	-0,121	-0,005	0,071	0,114	-,206*	-0,015
		Sig. (2-tailed)	0,464	0,907	0,469	0,743	0,479	0,012		0,475	0,244	0,959	0,499	0,275	0,046	0,883
	I	Correlati on Coefficie nt	-0,059	-0,042	-0,136	-0,018	0,13	0,06	-0,075	1	,324**	,613**	,569**	,583**	,541**	-0,016
		Sig. (2-tailed)	0,573	0,687	0,19	0,865	0,212	0,564	0,475		0,001	0	0	0	0	0,88

	S	**Correlation Coefficient**	-0,035	-0,017	-,409**	,247*	0,144	0,047	-0,121	,324**	1	,486**	,285**	,267**	,504**	-,267**
		Sig. (2-tailed)	0,739	0,874	0	0,016	0,168	0,651	0,244	0,001		0	0,005	0,009	0	0,009
	RE	**Correlation Coefficient**	0,029	-0,131	-,313**	,217*	0,114	0,005	-0,005	,613**	,486**	1	,472**	,459**	,560**	0,009
		Sig. (2-tailed)	0,784	0,209	0,002	0,036	0,275	0,964	0,959	0	0		0	0	0	0,934
	ML	**Correlation Coefficient**	0,058	0,175	-,244*	0,132	,290**	0,136	0,071	,569**	,285**	,472**	1	,505**	,551**	0,057
		Sig. (2-tailed)	0,576	0,092	0,018	0,206	0,005	0,19	0,499	0	0,005	0		0	0	0,588
	PO	**Correlation Coefficient**	-0,048	-0,033	0,039	0,092	,310**	0,053	0,114	,583**	,267**	,459**	,505**	1	,520**	-0,135
		Sig. (2-tailed)	0,643	0,754	0,708	0,375	0,002	0,615	0,275	0	0,009	0	0		0	0,195
	TOTAL_STAND	**Correlation Coefficient**	-0,002	-0,003	-,363**	0,144	,226*	0,046	-,206*	,541**	,504**	,560**	,551**	,520**	1	-0,056
		Sig. (2-tailed)	0,983	0,98	0	0,165	0,028	0,657	0,046	0	0	0	0	0		0,594
	Confidence to child's lang_dev	**Correlation Coefficient**	,267**	-0,064	,270**	0,06	0,14	-0,036	-0,015	-0,016	-,267**	0,009	0,057	-0,135	-0,056	1
		Sig. (2-tailed)	0,009	0,54	0,008	0,568	0,179	0,733	0,883	0,88	0,009	0,934	0,588	0,195	0,594	

Table 5. Spearman's rank-order correlation test to investigate correlations between all the survey's studied variables.

(Q2B) What are the associations between the studied variables among late talkers and TLD children separately?

Examining data from children with and without late language emergence (LLE) in the communicative language assessment, we conducted non-parametric statistics, using the Kruskal-Wallis Test.

As can be seen in Tab. 6 and Tab. 7, the associations between the studied variables differ among Late Talkers (LT) and Typically Development (TD) children.

Looking at the tables below, we found that expressive vocabulary is significantly correlated with responsivity (r= 0.626, p= 0.005) and confidence related to child's language development (r= 0.494, p= 0.037) in LT group, while in TLD group it's correlated with age (r= 0.256, p= 0.026), assertiveness (r= 0.325, p= 0.004) and responsivity (r= 0.242, p=0.035). The measure of expressive vocabulary did not correlate with any of the executive functions neither in LTs (Inhibition: r= -0.157, p= 0.536; Shifting: r= -0.244, p= 0.329; Emotional control: r=0.051, p= 0.842; Working memory: r= -0.112, p=0.657; Planning/ organization: r= 0.277, p= 0.266; Total score of EFs: r= 0.059; p=0.816) nor in TLDs (Inhibition: r= - 0.042, p= 0.719; Shifting: r= -0.09, p= 0.441; Emotional regulation: r= -

0.08, p= 0.491; Working memory: r= 0.011, p= 0.923; Planning/ organization: r= - 0.024, p= 0.838; Total score of EFs: r= -0.111; p= 0.339).

It can also be observed that, across late talkers, age is negatively correlated with assertiveness (r= -0.628, p= 0.005) while in TLDs it is positively correlated with responsivity (r= 0.278, p= 0.012).

Furthermore, sex is correlated with inhibition (r= - 0.525, p= 0.025) in LT and with several EFs measures (Shifting: r= - 0.420, p < 0.001; Emotional regulation: r= -0.331, p= 0.004; Working memory: r= - 0.226, p= 0.049; Total score of EFs: r= -0.367; p= 0.001) and the confidence related to child's language development (r= 0.289, p= 0.011) in TLDs.

In both LT and TLD groups, SCS abilities (assertiveness and responsivity) are reciprocally correlated (LTs: r= 0.545, p= 0.019; TLDs: r= 0.551, p< 0.001) and in LTs group responsivity is positively correlated with confidence related to child's language development (r= 0.585, p= 0.011).

Finally, as shown in the tables below, measures of EFs are positively correlated with each other in each of the two groups.

			EXPR VOC	AGE	SEX	ASSER	RESP	MAT EDU	PAT EDU	I	S	RE	ML	PO	TOTAL. STAND	Confidence to child's lang_dev
Spearman's rho	EXPR_ VOC	Correlation Coefficient	1	-0,321	0,306	0,39	,626**	0,254	-0,087	-0,157	-0,244	0,051	-0,112	0,277	0,059	,494*
		Sig. (2-tailed)		0,193	0,217	0,11	0,005	0,308	0,731	0,535	0,329	0,842	0,657	0,266	0,816	0,037
	AGE	Correlation Coefficient	-0,321	1	-0,011	-,628**	-0,204	-0,147	0,376	-0,148	-0,385	-0,203	-0,06	-0,337	-0,423	-0,033
		Sig. (2-tailed)	0,193		0,966	0,005	0,416	0,56	0,124	0,558	0,115	0,419	0,814	0,172	0,08	0,897
	SEX	Correlation Coefficient	0,306	-0,011	1	-0,011	0,298	0	0,25	-,525*	-0,438	-0,263	-0,381	0,235	-0,399	0,169
		Sig. (2-tailed)	0,217	0,966		0,965	0,23	1	0,318	0,025	0,069	0,291	0,119	0,347	0,101	0,503
	ASSER	Correlation Coefficient	0,39	-,628**	-0,011	1	,545*	0,184	-0,127	0,016	0,303	0,382	-0,039	0,442	0,418	0,165
		Sig. (2-tailed)	0,11	0,005	0,965		0,019	0,464	0,615	0,95	0,222	0,117	0,878	0,066	0,084	0,513
	RESP	Correlation Coefficient	,626**	-0,204	0,298	,545*	1	0,149	-0,054	-0,147	-0,136	-0,093	0,045	0,341	0,121	,585*
		Sig. (2-tailed)	0,005	0,416	0,23	0,019		0,555	0,831	0,559	0,592	0,714	0,859	0,166	0,632	0,011
	MAT EDU	Correlation Coefficient	0,254	-0,147	0	0,184	0,149	1	-0,025	0,087	0,131	0,002	-0,05	0,32	0,179	-0,095
		Sig. (2-tailed)	0,308	0,56	1	0,464	0,555		0,92	0,73	0,604	0,993	0,844	0,196	0,478	0,708
	PAT EDU	Correlation Coefficient	-0,087	0,376	0,25	-0,127	-0,054	-0,025	1	-0,218	-0,225	0,088	-0,454	0,314	-0,295	-0,227

		Sig. (2-tailed)	0,731	0,124	0,318	0,615	0,831	0,92		0,385	0,37	0,729	0,058	0,204	0,234	0,365
	I	**Correlation Coefficient**	-0,157	-0,148	-,525*	0,016	-0,147	0,087	-0,218	1	,559*	,555*	,497*	0,042	0,468	-0,056
		Sig. (2-tailed)	0,535	0,558	0,025	0,95	0,559	0,73	0,385		0,016	0,017	0,036	0,868	0,05	0,826
	S	**Correlation Coefficient**	-0,244	-0,385	-0,438	0,303	-0,136	0,131	-0,225	,559*	1	,478*	0,284	0,301	,483*	-0,177
		Sig. (2-tailed)	0,329	0,115	0,069	0,222	0,592	0,604	0,37	0,016		0,045	0,253	0,225	0,042	0,481
	RE	**Correlation Coefficient**	0,051	-0,203	-0,263	0,382	-0,093	0,002	0,088	,555*	,478*	1	0,455	0,253	,674**	0,08
		Sig. (2-tailed)	0,842	0,419	0,291	0,117	0,714	0,993	0,729	0,017	0,045		0,058	0,31	0,002	0,752
	ML	**Correlation Coefficient**	-0,112	-0,06	-0,381	-0,039	0,045	-0,05	-0,454	,497*	0,284	0,455	1	-0,074	,764**	0,357
		Sig. (2-tailed)	0,657	0,814	0,119	0,878	0,859	0,844	0,058	0,036	0,253	0,058		0,772	0	0,145
	PO	**Correlation Coefficient**	0,277	-0,337	0,235	0,442	0,341	0,32	0,314	0,042	0,301	0,253	-0,074	1	0,366	-0,134
		Sig. (2-tailed)	0,266	0,172	0,347	0,066	0,166	0,196	0,204	0,868	0,225	0,31	0,772		0,135	0,595
	TOTAL STAND	**Correlation Coefficient**	0,059	-0,423	-0,399	0,418	0,121	0,179	-0,295	0,468	,483*	,674**	,764**	0,366	1	0,129
		Sig. (2-tailed)	0,816	0,08	0,101	0,084	0,632	0,478	0,234	0,05	0,042	0,002	0	0,135		0,61
	Confidence to child's lang_dev	**Correlation Coefficient**	,494*	-0,033	0,169	0,165	,585*	-0,095	-0,227	-0,056	-0,177	0,08	0,357	-0,134	0,129	1
		Sig. (2-tailed)	0,037	0,897	0,503	0,513	0,011	0,708	0,365	0,826	0,481	0,752	0,145	0,595	0,61	

Table 6: Spearman's rank-order correlation test in LTs group (TOT= 18 compilations) to investigate correlations between all the studied variables in the survey

			EXPR VOC	**AGE**	**SEX**	**ASSER**	**RESP**	**MAT EDU**	**PAT EDU**	**I**	**S**	**RE**	**ML**	**PO**	**TOTAL. STAND**	**Confidence to child's lang_dev**
Spearman's rho	**EXPR VOC**	**Correlation Coefficient**	1	-0,321	0,306	0,39	,626**	0,254	-0,087	-0,157	-0,244	0,051	-0,112	0,277	0,059	,494*
		Sig. (2-tailed)		0,193	0,217	0,11	0,005	0,308	0,731	0,535	0,329	0,842	0,657	0,266	0,816	0,037
	AGE	**Correlation Coefficient**	-0,321	1	-0,011	-,628**	-0,204	-0,147	0,376	-0,148	-0,385	-0,203	-0,06	-0,337	-0,423	-0,033
		Sig. (2-tailed)	0,193		0,966	0,005	0,416	0,56	0,124	0,558	0,115	0,419	0,814	0,172	0,08	0,897
	SEX	**Correlation Coefficient**	0,306	-0,011	1	-0,011	0,298	0	0,25	-,525*	-0,438	-0,263	-0,381	0,235	-0,399	0,169

		Sig. (2-tailed)	0,217	0,966		0,965	0,23	1	0,318	0,025	0,069	0,291	0,119	0,347	0,101	0,503
	ASSER	**Correlation Coefficient**	0,39	-,628**	-0,011	1	,545*	0,184	-0,127	0,016	0,303	0,382	-0,039	0,442	0,418	0,165
		Sig. (2-tailed)	0,11	0,005	0,965		0,019	0,464	0,615	0,95	0,222	0,117	0,878	0,066	0,084	0,513
	RESP	**Correlation Coefficient**	,626**	-0,204	0,298	,545*	1	0,149	-0,054	-0,147	-0,136	-0,093	0,045	0,341	0,121	,585*
		Sig. (2-tailed)	0,005	0,416	0,23	0,019		0,555	0,831	0,559	0,592	0,714	0,859	0,166	0,632	0,011
	MAT EDU	**Correlation Coefficient**	0,254	-0,147	0	0,184	0,149	1	-0,025	0,087	0,131	0,002	-0,05	0,32	0,179	-0,095
		Sig. (2-tailed)	0,308	0,56	1	0,464	0,555		0,92	0,73	0,604	0,993	0,844	0,196	0,478	0,708
	PAT EDU	**Correlation Coefficient**	-0,087	0,376	0,25	-0,127	-0,054	-0,025	1	-0,218	-0,225	0,088	-0,454	0,314	-0,295	-0,227
		Sig. (2-tailed)	0,731	0,124	0,318	0,615	0,831	0,92		0,385	0,37	0,729	0,058	0,204	0,234	0,365
	I	**Correlation Coefficient**	-0,157	-0,148	-,525*	0,016	-0,147	0,087	-0,218	1	,559*	,555*	,497*	0,042	0,468	-0,056
		Sig. (2-tailed)	0,535	0,558	0,025	0,95	0,559	0,73	0,385		0,016	0,017	0,036	0,868	0,05	0,826
	S	**Correlation Coefficient**	-0,244	-0,385	-0,438	0,303	-0,136	0,131	-0,225	,559*	1	,478*	0,284	0,301	,483*	-0,177
		Sig. (2-tailed)	0,329	0,115	0,069	0,222	0,592	0,604	0,37	0,016		0,045	0,253	0,225	0,042	0,481
	RE	**Correlation Coefficient**	0,051	-0,203	-0,263	0,382	-0,093	0,002	0,088	,555*	,478*	1	0,455	0,253	,674**	0,08
		Sig. (2-tailed)	0,842	0,419	0,291	0,117	0,714	0,993	0,729	0,017	0,045		0,058	0,31	0,002	0,752
	ML	**Correlation Coefficient**	-0,112	-0,06	-0,381	-0,039	0,045	-0,05	-0,454	,497*	0,284	0,455	1	-0,074	,764**	0,357
		Sig. (2-tailed)	0,657	0,814	0,119	0,878	0,859	0,844	0,058	0,036	0,253	0,058		0,772	0	0,145
	PO	**Correlation Coefficient**	0,277	-0,337	0,235	0,442	0,341	0,32	0,314	0,042	0,301	0,253	-0,074	1	0,366	-0,134
		Sig. (2-tailed)	0,266	0,172	0,347	0,066	0,166	0,196	0,204	0,868	0,225	0,31	0,772		0,135	0,595
	TOTAL STAND	**Correlation Coefficient**	0,059	-0,423	-0,399	0,418	0,121	0,179	-0,295	0,468	,483*	,674**	,764**	0,366	1	0,129
		Sig. (2-tailed)	0,816	0,08	0,101	0,084	0,632	0,478	0,234	0,05	0,042	0,002	0	0,135		0,61

	Confidence to child's lang_dev	Correlation Coeffic ient	,494*	-0,033	0,169	0,165	,585*	-0,095	-0,227	-0,056	-0,177	0,08	0,357	-0,134	0,129	1
		Sig. (2-tailed)	0,037	0,897	0,503	0,513	0,011	0,708	0,365	0,826	0,481	0,752	0,145	0,595	0,61	

Table 7. Spearman's rank-order correlation test in TLDs group (TOT= 76 compilations) to investigate correlations between all the studied variables in the survey

(Q2C) Are there any differences on the variables studied of the three surveys between children with and without LLE?

Tab. 8 shows Kruskal-Wallis H test results, with comparisons between the two groups of children (LLE and TD) on the variables studied in the three questionnaires (PVB, ASCB, BRIEF-Ps).

Significant differences are founded between LLE and TD children in Expressive Vocabulary (H= 43.262, p< 0.001), Assertiveness (H= 7.934, p= 0.005), Responsivity (H= 9.78, p= 0.002) and Parental confidence related to child's language development (H= 4.764, p= 0.029).

However, as can be seen in the table, we found non-significant differences in age, sex, parental education and executive functions between children with and without LLE.

Test Statistics[a,b]

	Expressive_ vocabulary	Age	SEX	STAND ASSERT	STAND RESP	Maternal education	Paternal_ education	I	S	RE	ML	PO	TOTAL_ BRIEF-Ps	Confidence related to child's lang dev
Kruskal-Wallis H	43,262	0,452	0,712	7,934	9,78	1,094	1,672	0,122	0,233	1,212	0,54	0,339	0,945	4,764
df	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Asymp. Sig.	0	0,501	0,399	0,005	0,002	0,296	0,196	0,727	0,629	0,271	0,462	0,56	0,331	0,029

a. Kruskal Wallis Test

b. Grouping Variable: LLEvsTD_coded_lle_is_1_td_is_2

Table 8. Kruskal Wallis test on the three communicative-language questionnaires across child with and without LLE

(Q3) Are there any associations between the studied variables and the parent issues related to the survey's satisfactory ratings?

To answer this question, we carried out non-parametric statistical analyses, using Spearman's rank-order correlation (Spearman's rho) to measure the strength and direction of the association between the variables.

As shown in the table below (Tab. 9), there are no significant correlations between most of the studied variables and the survey's satisfactory ratings. Interestingly, there is only a significant negative association between the perceived difficulties in filling out the ASCB questionnaire and the assertiveness score ($r = -0.220$, $p = 0.033$). Furthermore, parents' answers to the questions in the satisfaction questionnaire are positively correlated with each other.

			EXPR_VOC	AGE	SEX	ASSERT	RESPON	MAT_EDU	PAT_EDU	I	S	RE	ML	PD	TOTAL_EFs	Confidence related to child's lang dev	Difficulty in completing questionnaire	Perceived utility of examiner's presence	Difficulty if remote compilation	Perceived difficulty ASCB	Perceived difficulty MB-CDI	Perceived difficulty BRIEF-Ps
Spearman's rho	Difficulty in completing the questionnaire	Correlation Coefficient	-0,133	0,04	-0,026	-0,199	-0,093	0,045	-0,062	-0,062	0,115	-0,124	0,06	-0,13	-0,041	0,029	1	0,118	,447**	,586**	,534**	,633**
		Sig. (2-tailed)	0,201	0,701	0,805	0,055	0,372	0,669	0,554	0,552	0,268	0,232	0,566	0,212	0,686	0,785		0,255	0	0	0	0
	Perceived utility of examiner's presence	Correlation Coefficient	-0,019	,116	-0,012	0,046	0,133	0,069	-0,191	0,049	0,131	0,03	-0,117	0,069	0,004	0,031	0,118	1	,462**	0,198	,291**	,311**
		Sig. (2-tailed)	0,856	0,267	0,91	0,661	0,202	0,505	0,065	0,637	0,209	0,775	0,26	0,503	0,972	0,763	0,255		0	0,056	0,004	0,002
	Difficulty if remote compilation	Correlation Coefficient	0,076	-,195	-0,002	-0,068	0,03	0,106	-0,026	-0,097	0,116	-0,016	-0,03	-0,037	-0,007	0,08	,447**	,462**	1	,472**	,410**	,567**
		Sig. (2-tailed)	0,455	0,598	0,982	0,514	0,776	0,308	0,8	0,364	0,267	0,879	0,773	0,725	0,945	0,442	0	0	0	0	0	0
	Perceived difficulty ASCB	Correlation Coefficient	-0,094	-,195	-0,088	-,220*	0,32	0,09	-0,096	-0,061	-0,023	-0,062	0,001	-0,028	-0,104	-0,021	,535**	0,198	,472**	1	,758**	,650**
		Sig. (2-tailed)	0,369	0,057	0,398	0,033	0,32	0,443	0,356	0,438	0,825	0,552	0,985	0,787	0,32	0,842	0	0,056	0		0	0
		N	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94
	Perceived difficulty MB-CDI	Correlation Coefficient	-0,142	-,224*	-0,102	-0,157	-0,059	0,03	-0,172	-0,09	-0,072	-0,094	-0,062	-0,011	-0,091	-0,031	,534**	,291**	,410**	,758**	1	,737**
		Sig. (2-tailed)	0,171	0,017	0,33	0,131	0,569	0,776	0,25	0,563	0,912	0,367	0,43	0,917	0,384	0,768	0	0,004	0	0		0
	Perceived difficulty BRIEF-Ps	Correlation Coefficient	-0,099	-,182	-0,023	-0,068	0,036	-0,065	-0,169	-0,028	0,034	-0,108	0,038	0,024	0,011	-0,049	,635**	,311**	,567**	,650**	,737**	1
		Sig. (2-tailed)	0,344	0,079	0,823	0,515	0,733	0,597	0,295	0,79	0,744	0,3	0,716	0,815	0,915	0,64	0	0,002	0	0	0	

Table 9. Spearman's rank order correlations to investigate associations between the satisfactory questionnaire and the studied variables.

6. Discussion

The present study aimed to investigate the difficulties perceived by parents of monolingual Italian children aged 24 to 36 months during the compilation of indirect communicative-language assessment through questionnaires, and to determine whether there are correlations between the SCS, expressive vocabulary, SES, confidence in child's language development and EFs. To sum up, this study emphasizes the importance of considering both the difficulties perceived by parents when completing indirect assessment questionnaires and the social, communicative and cognitive factors that influence language development in early infancy.

In order to answer our research questions, we analyzed parents' remarks reported, as well as we explore potential differences between LT and TLD's parents' compilations of satisfactory questionnaire in Q1. In Q2, we explore the associations between all studied variables in the entire sample and in LTs and TLDs children separately and the differences between children with and without late language emergence. Finally, we analyzed the associations between all the studied variables and parent's ratings to the satisfactory survey for the Q3.

As for the Q1, findings reveal significant difficulties faced by parents, particularly when completing the Italian adaptation of the short form of the MB-CDI word and sentences (PVB: Il primo Vocabolario del Bambino, parole e frasi forma breve) questionnaire. Specifically, 54 remarks were recorded while parents completed this survey: the most complex part of this questionnaire perceived by parents' remarks was the vocabulary checklist. As Kristoffersen et al. (2013) observed, many parents commented on the vocabulary selection, highlighting that variations in how words were used in their family context or differences in dialect made it challenging for them to accurately complete the forms. In addition, some parents believed that the vocabulary checklist did not precisely capture their child's real language abilities. According to the recorded parents' questions, they experienced also difficulties in ASCB (35 questions) and in the BRIEF-P (26 questions) questionnaires, particularly in understanding the questions and in selecting appropriate answers from the available options. Also, some parents complained about the length of the entire survey, lamenting that it was difficult for them to stay focused during the compilation, which lasted 25 to 40 minutes. Results of the statistical analysis of the satisfaction

questionnaire do not show any significant difference between the compilations of any of the questions between LT and TLD's parents, suggesting that indirect filling-in questionnaires for early childhood are easy to complete for both TLD and LT parents. However, as can be inferred from the difficulties reported by parents during completion, it is important to provide guidance to parents to complete the questionnaire, in line with previous literature (e.g. De Mayo et al., 2021; Gatt et al., 2023).

As for the Q2, we studied correlations among the variables included in MB-CDI (expressive vocabulary, age, sex, maternal and paternal education, parental confidence in child's language development), ASCB (assertiveness and responsiveness) and BRIEF-P (inhibition, shifting, emotional regulation, working memory, planning/organization and total score of BRIEF-P).

In the whole sample, there are statistically significant positive correlations between expressive vocabulary and both SCS abilities (assertiveness and responsivity). Interestingly, the nature of these correlations differed between LT and TLD groups. Looking at the two groups of Late Talker and Typical Language Development children separately, it can be seen that expressive vocabulary is associated with responsiveness and assertiveness in TLDs and only responsiveness in TLDs. This means that, in TLD children, a higher level of assertiveness and responsiveness are associated with a better ability to express themselves verbally, and vice versa, while in LTs their expressive vocabulary is more associated with how they respond to social stimuli rather than their assertiveness.

Interestingly, expressive vocabulary is also positively related to parental confidence in the child's language development in the whole sample and in LTs, indicating that higher vocabulary levels may bolster parental confidence, that is a crucial factor to consider when assessing children in early infancy (Sim et al., 2019). This suggests that when children show stronger verbal abilities, it can relieve parental concerns about their child's development, especially in cases where parents might be worried due to delayed language onset (as in LTs). This underscores the importance of considering not only the child's linguistic abilities but also the parental perception of progress, which can have a significant impact on developmental support and interventions.

Furthermore, the analysis did not show significant correlations between executive functions (EFs) and expressive vocabulary in either group.

However, measures of executive functions were positively correlated with socio-conversational skills in both groups, suggesting that cognitive skills such as working memory and emotional regulation may play a critical role in social communication. This means that children who demonstrate better executive function abilities tend to perform better in social communication contexts. Cognitive skills like working memory could help a child keep track of conversational topics, while emotional regulation could support appropriate social responses and more effective social interactions. The ability to regulate emotions and focus attention may also help children navigate complex social exchanges, which are vital components of socio-conversational skills.

For Q3, the study explored whether the perceived difficulties parents experienced in completing the questionnaires were associated with the variables measured in the assessments. Overall, the results indicated no significant correlations between most of the studied variables and the survey satisfaction ratings. This suggests that parental experience of compilation was largely independent of the children's communicative and cognitive performance. However, a notable exception was the significant negative association between the perceived difficulty in completing the ASCB questionnaire and the child's assertiveness score. Parents which children exhibited higher assertiveness found the ASCB questionnaire easier to complete. This finding suggests that children who are more assertive may be easier to assess through indirect parent reports, likely because their communicative behaviors are more visible and noticeable in daily interactions.

The perceived utility of the presence of an examiner during questionnaire compilation was another important factor. While there were no significant differences in satisfaction between LT and TLD parents, the presence of a trained examiner was generally viewed as supportive, not least because several parents' difficulties were answered by the examiner when filling in the questionnaire (for a total of 115 questions collected out of 95 compilations).

7. Limitations

While the present study provides valuable insights into early language development, parental reporting, and the distinctions between late talkers (LT) and typically developing children (TLD), several limitations should be acknowledged.

Although the sample size of 94 participants (parents of monolingual Italian children) provided an acceptable and reliable standard for statistical analysis, the sample may not fully represent the diversity of the population. In detail, the study focused on a relatively homogenous group of parents and children from specific regions in Italy (namely: Emilia Romagna and Marche), which may limit the generalizability of the findings to other geographic areas or populations with different linguistic or socio-cultural backgrounds.

Another limitation of the study might be that, during the data collection meetings, some parents were accompanied by their children, which acted as a source of distraction.

The presence of the children may have affected the parents' ability to fully focus on completing the questionnaires accurately and thoroughly. This could have introduced variability in the quality of the data collected, as parents might have rushed through certain sections or misinterpreted questions due to distractions. Future studies should consider ensuring a more controlled environment for data collection, possibly by arranging separate settings where children could stay during parental compilation in order to minimize distractions.

As complained by parents, the length of the questionnaire may be considered as a potential limitation. Indeed, many of them reported that the questionnaire was too long and caused fatigue or loss of focus. This may have affected the quality of the responses, as parents might have hastily compiled the survey or found it difficult to maintain concentration.

The use of a web-based survey platform (Kobo Toolbox) introduced both strengths and limitations. While the platform allowed for efficient data collection, several parents encountered technological issues that impacted the process. On some occasions, Wi-Fi connectivity didn't work, bothering the survey completion. Additionally, many parents were unfamiliar with the platform because they had never used similar software before, which may have contributed to confusion and delays during the data collection sessions. Furthermore, some parents experienced difficulties scanning the QR code, requiring additional assistance from the examiner. These technical issues may have contributed to delays and frustration, potentially affecting data reliability.

8. Conclusions and future prospective

In this study, language and cognitive skills in children aged 24-36 months were assessed through a web-based parent-report survey, that had been filled out in presence of a trained examiner, that recorded all parents' issues during the compilation.

Parents experienced significant difficulties, particularly with the Italian adaptation of the MacArthur-Bates Communicative Development Inventory. The vocabulary checklist can be considered as the greatest challenge, with parents frequently questioning whether non-standard word forms, gestures and repeated utterances should be marked in the assessment. Additionally, difficulties were reported in understanding questions within the ASCB and BRIEF-P questionnaires, especially in understanding the content of the questions and in selecting the appropriate answer from the available options. Although no significant differences were observed in the perceived difficulty between parents of LT and TLD children, our findings emphasize the need for clearer instructions and potential training to enhance the accuracy and reliability of parent reports. Indeed, providing parents with a clear guide during the completion of assessment questionnaires may enhance the accuracy of the data collected and contribute to earlier and more effective identification of language delays. Future works might focus on simplifying these tools and providing clearer instructions, maybe creating examples which can help parents in correctly filling in questionnaires.

In line with previous findings (Bonifacio et al., 2010), this study supports the hypothesis that language development is associated to socio-communicative skills, which are themselves linked to executive functions. The study also demonstrated a positive association between expressive vocabulary and parental confidence in their child's language abilities, particularly in the LT group. This correlation underscores the significance of parental perceptions in the early identification of language delays and highlights the crucial role of parents in assessing and supporting language development.

Moreover, during the educational sessions, many parents raised concerns about the lack of routine- language screenings in early childhood. Parents expressed uncertainty about when to seek help in case of a language delay, which is sometimes noticed by teachers in nursery schools, not an available option to all families, as not all children attend nursery school. Future actions should prioritize the implementation of regular, standardized language check-ups for all children, regardless of nursery school or family centers attendance, to facilitate

early identification of language delays and ensure early intervention. In order to ensure user-friendly and low-cost screening, web-based indirect tools could be a solution.

Appendix 1: Preregistration of this study on Open Science Framework (OSF)

Supervisory intervention by speech therapist of a Web-Based Communicative-Language Assessment

Study Information

Hypotheses

1) What are the differences between remote and in-person assessment of language-communicative and early cognitive skills?
2) Are there any associations between the studied variables of the three surveys? What are the associations between the studied variables among late talkers and TD children separately?
3) What are the parent's issues and questions during the compilation of the questionnaire? Are there differences between LT and TLD's parents' compilation difficulties and comments?
4) Are there any differences between LT and TD on the studied variables?
5) Are there any associations between the studied variables and the parents' issues related to the survey's satisfactory ratings?

Design Plan

Study type

Observational Study - Data is collected from study subjects that are not randomly assigned to a treatment. This includes surveys, "natural experiments," and regression discontinuity designs.

Blinding

No blinding is involved in this study.

Is there any additional blinding in this study?

No response

Study design

We will administer the Italian version of ASCB, MB-CDI, and BRIEF-P to assess respectively social-conversational skills, communicative and language development and executive functions development. Parents will fill the questionnaire related to their child in a web- based platform, next to a trained examiner (speech and language pathologist).
At the end of this questionnaire, parents will be asked to answer an other short survey about their compilation fulfillment.

No files selected

Randomization

No response

Sampling Plan

Existing Data

Registration prior to creation of data

Explanation of existing data

Web-based in-person data will be collected in this project.
Web-based remote data has been collected and published in Farabolini, Ceravolo, Marini (2023).

Data collection procedures

We will collect data on social-conversational skills, communicative-language development and executive functions of Italian monolingual children aged 24 to 36 months with no cognitive, genetic or sensory disabilities.
To collect this data, we will organize meeting with parents of eligible children in nursery schools, library and other associations. In

this meeting, parents will be asked to fill the questionnaires through a web based assestment tool, in presence of a trained examiner (speech language pathologist).

No files selected

Sample size

At the beginning of the study, we set the minimum target at 108 compilations, as it has been done in Farabolini, Ceravolo, Marini (2023).

Sample size rationale

We use the g power analysis in order to calculate the sample size of this study.
For RQ1 and RQ4, setting an alfa error=0.5; 1-beta error= 0.95; Cohen's d=0.5; we need to collect data on at least 88 children.
For RQ2 and RQ5, setting an alfa error=0.5; 1-beta error= 0.80; r=0.3; two tails analysis; we need to collect data on at least 84 children.

Stopping rule

No response

Variables

Manipulated variables

No response

No files selected

Measured variables

We will extract such variables from each tool respectively:
ASCB:
- responsiveness
- assertiveness

MB-CDI:
- vocabulary score
- sentence use development
- SES

BRIEF-P:
- shift
- inibhition
- planning
- working memory
- emotions' regulation

No files selected

Indices

No response

No files selected

Analysis Plan

Statistical models

We will carry out either parametric (multiple linear regression) or non-parametric analyses (U Mann-Whitney Test) accordingly with the Levene test to analyse differences between groups for RQ1 and RQ4; for RQ2 and RQ5 we'll carry out Pearson correlation analysis or Spearman RHO's correlation analyses.

No files selected

Transformations

No response

Inference criteria

No response

Data exclusion

We'll include Italian monolingual children aged 24 to 36 months with no cognitive, genetic or sensory disabilities.

Missing data

There won't be no missing data because parents have to complete each question before leaving the survey.

Exploratory analysis

No response

Other

Other

No response

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Appendix 2: Recorded difficulties during the surveys' compilation. At the top are reported the exact words of the parents, below the English translation.

RECORDED DIFFICULTIES DURING THE ASCB COMPILATION

1. "Domanda 1: se propongo a mio figlio di scegliere tra due cose che gli piacciono, lui dice/mostra quale vuole", mio figlio le vuole entrambi, che metto? "Question 1: If I offer my son a choice between two things he likes, he says/shows which one he wants." My son always wants both. What should I put?
2. "Domanda 1: se propongo a mio figlio di scegliere tra due cose che gli piacciono, lui dice/mostra quale vuole" quindi devo mettere sempre quando me lo indica ma non lo chiede a parole? "Question 1: If I offer my son a choice between two things he likes, he says/shows which one he wants." So I should always indicate when he shows me, even if he doesn't ask verbally?
3. "Domanda 2: quando accade un fatto nuovo o insolito, per esempio un forte rumore, mio figlio mi chiede qualcosa a riguardo" se mio figlio non parla ma si accorge di un fatto nuovo/evento insolito, cosa rispondo? Lui mi ci porta ma verbalmente ancora non chiede niente, ha 25 mesi "Question 2: When something new or unusual happens, such as a loud noise, my son asks me something about it." If my son doesn't talk but notices something new/unusual, what should I answer? He brings me to it, but he hasn't asked anything verbally yet, he's 25 months old.
4. "Domanda 2: quando accade un fatto nuovo o insolito, per esempio un forte rumore, mio figlio mi chiede qualcosa a riguardo", mio figlio ancora non mi fa una domanda, cosa rispondo? "Question 2: When something new or unusual happens, such as a loud noise, my son asks me something about it." My son still hasn't asked me anything, what should I answer?
5. "Domanda 4: mio figlio fa domande" mio figlio ancora non fa domande ma qualcosa dice, cosa metto? "Question 4: My son asks questions." My son still doesn't ask questions, but he says something. What should I put?
6. "Domanda 4: mio figlio fa domande" mio figlio dice solo mamma e papà, capisco che mi vuole chiedere qualcosa ma non formula la domanda, cosa dovrei mettere?

"Question 4: My son asks questions." My son only says "mom" and "dad." I understand he wants to ask something, but he doesn't form the question. What should I put?
7. "Domanda 4: mio figlio fa domande" vale come domanda anche se mi dice solo "acqua?" quando vuole l'acqua? "Question 4: My son asks questions." Does it count as a question even if he just says "water?" when he wants water?
8. "Domanda 4: mio figlio fa domande" Vale anche se non formula la frase della domanda nel modo corretto? Dall'intonazione capisco che è una domanda però non è costruita proprio correttamente "Question 4: My son asks questions." Does it count even if the question is not grammatically correct? I can tell by the tone that it's a question, but the sentence is not perfectly structured.
9. "Domanda 5 - Durante le attività quotidiane, mio figlio inizia a conversare con me", quando parla non si capisce niente. Che cosa devo rispondere?" "Question 5: During daily activities, my son starts a conversation with me." When he talks, it's incomprehensible. What should I answer?
10. "Domanda 5 durante le attività quotidiane, mio figlio inizia a conversare con me" mio figlio richiama la mia attenzione ma non con frasi complesse facendo discorsi, cosa devo mettere? "Question 5: During daily activities, my son starts a conversation with me." My son gets my attention, but not with complex sentences or making conversation. What should I put?
11. "Domanda 5: durante le attività quotidiane, mio figlio inizia a conversare con me", ancora non parla bene cosa devo mettere? "Question 5: During daily activities, my son starts a conversation with me." He still doesn't speak well. What should I put?
12. "Domanda 6: quando faccio una domanda a mio figlio, lui mi risponde" come risposta si intende una risposta verbale o non verbale? "Question 6: When I ask my son a question, he responds." Does this refer to a verbal or non-verbal response?
13. "Domanda 6: Quando faccio una domanda a mio figlio, lui mi risponde", spesso non mi risponde perché è concentrato nelle sue attività, ma non perché non mi vuole rispondere o perché non mi capisce, cosa metto? "Question 6: When I ask my son a question, he responds." Often, he doesn't respond because he's focused on his activities, but not because he doesn't understand or doesn't want to respond. What should I put?

14. "Domanda 6 - Quando faccio una domanda a mio figlio, lui mi risponde" cosa metto se mi risponde a caso?
    "Question 6: When I ask my son a question, he responds." What should I put if he answers randomly?
15. "Domanda 7: Mentre facciamo qualcosa insieme, mio figlio se vuole cambiare un'attività me lo chiede" mia figlia di 26 mesi non parla, però se vuole cambiare attività lo capisco perché lei comunque condivide l'attenzione con me e mi porta verso l'altro oggetto
    "Question 7: While we are doing something together, if my son wants to change activities, he asks me." My 26-month-old daughter doesn't speak, but I can tell she wants to change activities because she shares attention with me and brings me to the other object
16. "Domanda 7: mentre facciamo qualcosa insieme mio figlio se vuole cambiare attività me lo chiede" se me lo chiede non verbalmente cosa metto?
    "Question 7: While we are doing something together, if my son wants to change activities, he asks me." If he asks me non-verbally, what should I put?
17. "Domanda 7: Mentre facciamo qualcosa insieme, mio figlio se vuole cambiare un'attività me lo chiede" non sempre quando vuole cambiare lo chiede, però mi avverte sempre e mi dice quando cambia attività, cosa devo rispondere?
    "Question 7: While we are doing something together, if my son wants to change activities, he asks me." He doesn't always ask to change, but he always lets me know when he does. What should I answer?
18. "domanda 7: Mentre facciamo qualcosa insieme, mio figlio se vuole cambiare un'attività me lo chiede " mi ci porta, non me lo chiede, cosa rispondo?
    "Question 7: While we are doing something together, if my son wants to change activities, he asks me." He brings me to it instead of asking. What should I answer?
19. "Domanda 7: Mentre facciamo qualcosa insieme, mio figlio se vuole cambiare un'attività me lo chiede " nel senso che me lo chiede espressamente?
    "Question 7: While we are doing something together, if my son wants to change activities, he asks me." Does it mean he asks explicitly?
20. "Domanda 7: Mentre facciamo qualcosa insieme, mio figlio se vuole cambiare un'attività me lo chiede " come faccio a capire che mi sta chiedendo di cambiare attività? Vale anche non verbalmente?
    "Question 7: While we are doing something together, if my son wants to change activities, he asks me." How do I know if he's asking to change activities? Does it count if it's non-verbal?

21. "Domanda 9: Mio figlio mi chiede di unirmi a lui nei suoi giochi", in che senso unirmi a lui nei giochi? "Question 9: My son asks me to join him in his play." What does it mean to join him in his play?
22. "Domanda 10: Durante una conversazione mio figlio mantiene lo stesso argomento di cui stiamo parlando per due o più scambi di conversazione" mia figlia ancora non fa discorsi, che cosa metto? “Question 10: During a conversation, my son maintains the same topic for two or more exchanges." My daughter doesn’t hold conversations yet. What should I put?
23. "Domanda 10: Durante una conversazione mio figlio mantiene lo stesso argomento di cui stiamo parlando per due o più scambi di conversazione" mio figlio ancora non fa discorsi, cosa metto? "Question 10: During a conversation, my son maintains the same topic for two or more exchanges." My son doesn’t hold conversations yet. What should I put?
24. "Domanda 10: Durante una conversazione mio figlio mantiene lo stesso argomento di cui stiamo parlando per due o più scambi di conversazione" mio figlio parla poco, non fa discorsi, cosa metto? "Question 10: During a conversation, my son maintains the same topic for two or more exchanges." My son speaks very little, doesn’t hold conversations. What should I put?
25. Domanda 10: Durante una conversazione mio figlio mantiene lo stesso argomento di cui stiamo parlando per due o più scambi di conversazione" mio figlio dice poche parole, cosa metto? "Question 10: During a conversation, my son maintains the same topic for two or more exchanges." My son says very few words. What should I put?
26. "Domanda 10: durante una conversazione, mio figlio mantiene lo stesso argomento di cui stiamo parlando per due o più scambi di conversazione” secondo me la domanda è molto simile ad un'altra che ho già letto "Question 10: During a conversation, my son maintains the same topic for two or more exchanges." This question seems very similar to one I’ve already read.
27. "Domanda 10: Durante una conversazione mio figlio mantiene lo stesso argomento di cui stiamo parlando per due o più scambi di conversazione" mio figlio ancora non fa discorsi, cosa metto? "Question 10: During a conversation, my son maintains the same topic for two or more exchanges." My son doesn’t hold conversations yet. What should I put?

28. "Domanda 12 Le risposte di mio figlio si riferiscono a ciò di cui stiamo parlando" cosa significa?
    "Question 12: My son's responses are related to what we're talking about." What does this mean?
29. "Domanda 13: quando giochiamo assieme mio figlio mi propone un gioco che abbiamo già fatto in precedenza" in precedenza in che senso? 10 minuti prima oppure un gioco che abbiamo in casa e che facciamo periodicamente?
    "Question 13: When we play together, my son suggests a game we've played before." Does "before" mean 10 minutes earlier or a game we regularly play at home?
30. Se rispondo "spesso" alla domanda 13 "Quando stiamo insieme, mio figlio mi propone un gioco che abbiamo già fatto in precedenza", posso rispondere dare la stessa risposta anche alla 14 "Quando giochiamo insieme, mio figlio propone giochi diversi rispetto a quello che stiamo facendo in quel momento"?
    If I answer "often" to question 13 "When we play together, my son suggests a game we've played before," can I give the same answer to question 14 "When we play together, my son suggests different games from what we're doing at that moment"?
31. "Domanda 16: quando mio figlio non sa fare qualcosa ed io gli sono vicino mi chiede aiuto" anche quando sono lontano me lo chiede, però non me lo chiede a parole, mi porta, cosa metto?
    "Question 16: When my son doesn't know how to do something, and I'm nearby, he asks for help." Even when I'm far away, he brings me the item, but he doesn't ask verbally. What should I put?
32. "Domanda 17: se ho in mano qualcosa e mio figlio la vuole, lui me la chiede" vale anche se mi dice "mio" senza chiedere?"
    "Question 17: If I'm holding something my son wants, he asks for it." Does it count if he just says "mine" without asking?
33. "Domanda 21: Quando mio figlio non sa il nome di qualcosa che stiamo guardando insieme, mi chiede che cos'è" anche se me lo chiede non verbalmente?
    "Question 21: When my son doesn't know the name of something we're looking at together, he asks what it is." Does it count even if he asks non-verbally?
34. "Domanda 22- Quando mio figlio vuole qualcosa che non riesce a prendere, mi chiede aiuto" lei è capace a chiedere aiuto e me lo chiede ma spesso le cose sa

come prendersele da sola, ad esempio arrampicandosi sulla sediolina, cosa devo mettere? "Question 22: When my son wants something he can't reach, he asks for help." She knows how to ask for help, but often she can get things herself, like climbing on a chair. What should I put?

RECORDED DIFFICULTIES DURING THE MB-CDI COMPILATION

1. [nella sezione VOCABOLARIO ESPRESSIVO] Mio figlio dice pappa, ma non c'è, e non dice altre parole, cosa posso selezionare? [In the EXPRESSIVE VOCABULARY section] My son says "pappa" (food), but it's not listed, and he doesn't say other words. What can I choose?
2. [nella sezione VOCABOLARIO ESPRESSIVO] Invece mio figlio per lupo dice auf, va bene o non posso selezionare l'item lupo?" [In the EXPRESSIVE VOCABULARY section] My son says "auf" for "wolf." Is that acceptable, or should I not select the item "wolf"?
3. [nella sezione VOCABOLARIO ESPRESSIVO] devo segnare tutte le parole che dice? [In the EXPRESSIVE VOCABULARY section] Should I mark all the words he says?
4. [nella sezione VOCABOLARIO ESPRESSIVO] per lei l'uccellino è piopio, posso segnarla? [In the EXPRESSIVE VOCABULARY section] For her, the bird is "piopio" (tweet tweet). Can I mark it?
5. [nella sezione VOCABOLARIO ESPRESSIVO] mia figlia di 26 mesi ancora proprio non parla, non metto niente? [In the EXPRESSIVE VOCABULARY section] My 26-month-old daughter doesn't speak at all yet, should I leave it blank?
6. [nella sezione VOCABOLARIO ESPRESSIVO] Invece di dire cane dice bau, posso segnarlo? [In the EXPRESSIVE VOCABULARY section] Instead of saying "dog," my son says "bau" (woof). Can I mark it?
7. [nella sezione VOCABOLARIO ESPRESSIVO] Su ripetizione sa dire tutte le parole, posso segnarle tutte? [In the EXPRESSIVE VOCABULARY section] When prompted, in repetition, he can say all the words. Can I mark them all?

8. [nella sezione VOCABOLARIO ESPRESSIVO] (riferito a "i" nel vocabolario) per "i" cosa si intende? [In the EXPRESSIVE VOCABULARY section] (referring to "i" in the vocabulary) What does "i" mean?
9. [nella sezione VOCABOLARIO ESPRESSIVO] invece di dire berretta dice cappellino, posso segnarlo? [In the EXPRESSIVE VOCABULARY section] Instead of "berretta" (cap), he says "cappellino" (little hat). Can I mark it?
10. [nella sezione VOCABOLARIO ESPRESSIVO] la parola poliziotto non la dice, però sa cos'è e pronuncia la parola "polizia", lo metto? [In the EXPRESSIVE VOCABULARY section] He doesn't say "policeman" but knows what it is and says "police." Should I mark it?
11. [nella sezione VOCABOLARIO ESPRESSIVO] la bambina utilizza spesso la parola "oggi" in modo improprio, ad esempio "oggi sono andata da..." anche se non ci è realmente andata, cosa metto? [In the EXPRESSIVE VOCABULARY section] She often uses the word "oggi" (today) improperly, for example, "today I went to…" even if she didn't go anywhere. What should I put?
12. [nella sezione VOCABOLARIO ESPRESSIVO] Mio figlio non beve il succo, quindi non lo chiede, però beve la spremuta e dice "muta", segno comunque la parola "succo"? [In the EXPRESSIVE VOCABULARY section] My son doesn't drink juice, so he doesn't ask for it, but he drinks squeezed juice and says "muta." Should I still mark "juice"?
13. [nella sezione VOCABOLARIO ESPRESSIVO] mio figlio non dice la parola "sale" ma sa cos'è, lo segno? [In the EXPRESSIVE VOCABULARY section] My son doesn't say the word "salt," but he knows what it is. Should I mark it?
14. [nella sezione VOCABOLARIO ESPRESSIVO] Per "sei" si intende il verbo o il numero? [In the EXPRESSIVE VOCABULARY section] Does "sei" mean the verb (you are) or the number (six)?
15. [nella sezione VOCABOLARIO ESPRESSIVO] Invece di "dormire" dice nanna, la posso segnare?

[In the EXPRESSIVE VOCABULARY section] Instead of "sleep," she says "nanna" (baby word for sleep). Can I mark it?
16. [nella sezione VOCABOLARIO ESPRESSIVO] posso segnare la parola "succo" se mi fa il gesto? [In the EXPRESSIVE VOCABULARY section] Can I mark the word "juice" if he gestures instead of saying it?
17. [nella sezione VOCABOLARIO ESPRESSIVO] "mio figlio di ripeterle le ripete tutte, qui devo segnare quelle che dice spontaneamente?" [In the EXPRESSIVE VOCABULARY section] My son repeats all the words when prompted. Should I only mark those he says spontaneously?
18. [nella sezione VOCABOLARIO ESPRESSIVO] mia figlia invece di dire coccodè dice cocco, ma intende la gallina, la segno comunque? [In the EXPRESSIVE VOCABULARY section] My daughter says "cocco" instead of "coccodè" (cluck-cluck), but she means the chicken. Can I still mark it?
19. [nella sezione VOCABOLARIO ESPRESSIVO] mia figlia, dato che abbiamo iniziato il programma baby signs da quando aveva 6 mesi, mi fa il gesto di "ancora" ma la parola non la produce, lo posso segnare? [In the EXPRESSIVE VOCABULARY section] My daughter, since we started the baby signs program when she was 6 months old, makes the sign for "again," but doesn't say the word. Can I mark it?
20. [nella sezione VOCABOLARIO ESPRESSIVO] devo segnare tutte le parole che dice quindi? [In the EXPRESSIVE VOCABULARY section] Should I mark all the words she says?
21. [nella sezione VOCABOLARIO ESPRESSIVO] se dice togliere invece che levare posso comunque metterlo? [In the EXPRESSIVE VOCABULARY section] If he says "remove" instead of "take away," can I still mark it?
22. [nella sezione VOCABOLARIO ESPRESSIVO] se mio figlio dice chicchiricchi anziché coccodè per indicare sia la gallina che il gallo posso segnarlo? [In the EXPRESSIVE VOCABULARY section] If my son says "chicchiricchi" (cock-a-doodle-doo) instead of "coccodè" (cluck-cluck) to refer to both the hen and the rooster, can I mark it?
23. [nella sezione VOCABOLARIO ESPRESSIVO] se mio figlio dice bau anziché cane posso segnarlo?

[In the EXPRESSIVE VOCABULARY section] If my son says "bau" (woof) instead of "dog," can I mark it?
24. [nella sezione VOCABOLARIO ESPRESSIVO] se mio figlio dice vrum anziché aereo posso segnarlo? [In the EXPRESSIVE VOCABULARY section] If my son says "vroom" instead of "airplane," can I mark it?
25. [nella sezione VOCABOLARIO ESPRESSIVO] se mio figlio fa il gesto anziché dire una parola fa il gesto posso segnarlo? [In the EXPRESSIVE VOCABULARY section] If my son gestures instead of saying a word, can I mark it?
26. [nella sezione VOCABOLARIO ESPRESSIVO] se mia figlia dice il suo nome invece di "mio", ad esempio dice "Sara" quando deve indicare la sua bambola, posso segnare la parola "mio"? [In the EXPRESSIVE VOCABULARY section] If my daughter says her name instead of "mine," for example, she says "Sara" when referring to her doll, can I mark the word "mine"?
27. [nella sezione VOCABOLARIO ESPRESSIVO] mia figlia non dice bene la S, scopa posso segnarlo? [In the EXPRESSIVE VOCABULARY section] My daughter doesn’t pronounce the "S" correctly in "scopa" (broom). Can I still mark it?
28. [nella sezione VOCABOLARIO ESPRESSIVO] - Mio figlio non dice cane e gatto ma fa i versi, posso segnarlo comunque? [In the EXPRESSIVE VOCABULARY section] My son doesn’t say "dog" and "cat," but he makes the animal sounds. Can I still mark it?
29. [nella sezione VOCABOLARIO ESPRESSIVO] - Mio figlio non la dice ma la indica e fa il gesto, posso segnare comunque la parola? [In the EXPRESSIVE VOCABULARY section] My son doesn’t say the word, but he points to it and gestures. Can I still mark the word?
30. [nella sezione VOCABOLARIO ESPRESSIVO] - Devo barrare le parole che ripete o quelle che usa spesso? Tipo mia figlia se vedo un trattore e glielo dico me lo ripete, ma non è che mi parla sempre del trattore [In the EXPRESSIVE VOCABULARY section] Should I mark the words he repeats or the ones he uses often? For example, my daughter repeats "tractor" when I say it, but she doesn’t always talk about it.

31. [nella sezione VOCABOLARIO ESPRESSIVO] - posso barrare una parola anche se mio figlio non la dice correttamente ma lo capisco? [In the EXPRESSIVE VOCABULARY section] Can I mark a word even if my son doesn't say it correctly, but I understand it?
32. [nella sezione VOCABOLARIO ESPRESSIVO] - Mio figlio non dice passeggiare e raccontare ma ad esempio passeggiata e racconto, posso segnarlo lo stesso? [In the EXPRESSIVE VOCABULARY section] My son doesn't say "to walk" or "to tell," but he says "walk" and "story." Can I still mark them?
33. [nella sezione VOCABOLARIO ESPRESSIVO] - se dice "cipcip" anzichè "uccellino" posso comunque segnarla? [In the EXPRESSIVE VOCABULARY section] If he says "chirp chirp" instead of "bird," can I still mark it?
34. [nella sezione VOCABOLARIO ESPRESSIVO] - se fa il gesto dell'aereo anzichè dirlo posso segnarlo comunque? [In the EXPRESSIVE VOCABULARY section] If he gestures for "airplane" instead of saying it, can I still mark it?
35. [nella sezione della complessità delle frasi] una mamma chiede "come lo compilo? Devo segnare una frase delle due o solo alcune?" [in the section on SENTENCE COMPLEXITY] A mom asks, "How should I fill this out? Should I mark one of the two sentences or just some of them?"
36. [nella sezione della complessità delle frasi] ne dobbiamo segnare solo una dei due esempi? [in the section on SENTENCE COMPLEXITY] "Should we mark just one of the two examples?"
37. [nella sezione della complessità delle frasi] se ad esempio dice "do brum a mamma" invece di "caramella" posso segnare comunque la frase? [in the section on SENTENCE COMPLEXITY] If he says "give brum (car) to mom" instead of "give candy," can I still mark the sentence?
38. [nella sezione della complessità delle frasi] se mio figlio dice "do mella a bimba" e non "do la caramella alla bimba" oppure "mella bimba", quale devo segnare? [in the section on SENTENCE COMPLEXITY] If my son says "give mella (candy) to girl" instead of "give the candy to the girl" or "mella girl," which one should I mark?
39. [nella sezione della complessità delle frasi] la frase che pronuncia più simile a "papà più" è "papà su", posso segnarla comunque?

[in the section on SENTENCE COMPLEXITY] The sentence closest to "dad more" is "dad up." Can I still mark it?
40. [nella sezione della complessità delle frasi] se mio figlio dice "mamma giù" posso segnare la frase "papà più"? [in the section on SENTENCE COMPLEXITY] If my son says "mom down," can I mark the sentence "dad more"?
41. [nella sezione della complessità delle frasi] Mia figlia di 36 mesi dice frasi più complesse di queste, cosa metto? [in the section on SENTENCE COMPLEXITY] My 36-month-old daughter says more complex sentences than these. What should I put?
42. [nella sezione del comportamento del bambino] per quanto riguarda l'utilizzo dei gesti comunicativi, cosa metto? Lei ha smesso di utilizzarli da quando parla molto, ad esempio non allarga le braccia per dire "non c'è più", ma lo dice [In the section on CHILD'S BEHAVIOUR] Regarding the use of communicative gestures, what should I put? She stopped using them since she talks a lot. For example, she doesn't spread her arms to say "no more," she just says it.
43. 2 mamme chiedono [nella sezione del comportamento del bambino] che differenza c'è tra "indica un oggetto che desidera" o "indica un oggetto o una figura che gli interessa come se lo nominasse"?" Two moms ask: [In the section on Child's Behavior] What's the difference between "points to an object he wants" and "points to an object or figure he's interested in, as if naming it"?
44. [nella sezione del comportamento del bambino] mio figlio non fa più i gesti perché parla e si capisce bene, quando era più piccolo li usava per cui l'opzione "non ancora" non mi sembra appropriata, cosa metto? [In the section on Child's Behavior] My son doesn't use gestures anymore because he speaks, and it's easy to understand him. He used to use them when he was younger, so "not yet" doesn't seem appropriate. What should I put?
45. [nella sezione del comportamento del bambino] mia figlia non usa più i gesti, ma secondo me "non ancora" non è la risposta da dare; perché ad esempio non indica l'oggetto che desidera perché lo denomina e basta [In the section on Child's Behavior] My daughter doesn't use gestures anymore, but "not yet" doesn't seem to be the right answer. For example, she doesn't point to an object she wants because she just names it.

46. [nella domanda di pronuncia delle parole] mio figlio non pronuncia le parole, che devo mettere? Pronuncia solo mamma e pappa” [In the question about word pronunciation] My son doesn’t pronounce words. What should I put? He only says "mom" and "food."
47. [nella domanda di pronuncia delle parole] mio figlio non tanto sostituisce dei suoni ma più che altro tende a toglierli, ad esempio Lorenzo diventa Renzo, però è abbastanza comprensibile, cosa metto? [In the question about word pronunciation] My son doesn’t substitute sounds but tends to omit them. For example, "Lorenzo" becomes "Renzo," but he’s still understandable. What should I put?
48. [nella domanda della frase più lunga di questo periodo] devo scrivere una frase di senso compiuto? Lei spesso tende a fare lunghissimi discorsi senza senso quando gioca… [In the question about the longest sentence] Should I write a complete sentence? She tends to make very long, nonsensical speeches when playing.
49. [nella domanda della frase più lunga di questo periodo] la scrivo come la pronuncia, cioè con errori, oppure nel modo corretto come la comprendo io? [In the question about the longest sentence] Should I write it as she pronounces it, with errors, or the way I understand it?
50. [nella domanda della frase più lunga di questo periodo] Come faccio a scrivere la frase più lunga? Lei già fa i racconti… [In the question about the longest sentence] How do I write the longest sentence? She already tells stories.
51. [su domanda nella scheda informativa, dove viene chiesto se i familiari avessero sofferto di problematiche di udito/linguaggio/apprendimento] un familiare ha avuto disturbi del linguaggio ma risolti, devo segnare di sì? [Regarding the question in the information sheet] A family member had speech problems but resolved them. Should I mark "yes"?
52. [su domanda nella scheda informativa, dove viene chiesto se i familiari avessero sofferto di problematiche di udito/linguaggio/apprendimento] il fratellino di 6 anni non riesce a dire la r, metto che ci sono delle difficoltà di linguaggio in famiglia? [Regarding the question in the information sheet] My 6-year-old brother has difficulties in the pronouncing "R" sound…should I mark that there are language difficulties in the family?

RECORDED DIFFICULTIES DURING THE BRIEF-P COMPILATION

1. "Domanda 1: Reagisce in modo esagerato a piccoli problemi" cosa significa? Un problema può essere quando si lamenta che gli spengo la tv? "Question 1: Reacts excessively to minor problems." What does that mean? Is it a problem when he complains if I turn off the TV?
2. “Domanda 2: Quando gli/le vengono date due cose da fare, ricorda solo la prima o l'ultima” mah non lo so. Che devo mettere? "Question 2: When given two tasks, he/she only remembers the first or last one." I don’t know. What should I put?
3. "Domanda 2: Quando gli/le vengono date due cose da fare ricorda solo la prima o l'ultima": che significa? "Question 2: When given two tasks, he/she only remembers the first or last one." What does that mean?
4. "Domanda 5: Appare turbato/a di fronte a situazioni nuove" in che senso turbata? "Question 5: Appears upset in new situations." What does "upset" mean?
5. "Domanda 7: Ha difficoltà quando deve eseguire azioni che servono per completare un compito", che si intende per compito? "Question 7: Has difficulty completing tasks necessary to finish an activity." What is meant by "task"?
6. "Domanda 9: è necessario che gli/le venga detto di cominciare un compito nonostante sia lui stesso (o lei stessa) a volerlo fare” cosa significa? Quando noi stiamo finendo di mangiare e siamo a tavola le dico di andare a giocare altrimenti non si alza" "Question 9: Needs to be told to start a task even when he/she wants to do it." What does that mean? For example, when we finish eating at the table, I tell her to go play, or she won’t get up.
7. "Domanda 9: è necessario che gli/le venga detto di cominciare un compito nonostante sia lui stesso (o lei stessa) a volerlo fare" cosa significa? “Question 9: Needs to be told to start a task even when he/she wants to do it." What does that mean?
8. "Domanda 11: Si cruccia troppo facilmente" cosa vuol dire si cruccia? "Question 11: Gets upset too easily." What does "gets upset" mean?
9. “Domanda 11: Si cruccia troppo facilmente: cosa significa che si cruccia? "Question 11: Gets upset too easily." What does it mean to "get upset"?
10. "Domanda 11: Si cruccia troppo facilmente" cosa vuol dire si cruccia?

"Question 11: Gets upset too easily." What does "gets upset" mean?
11. "Domanda 11: Si cruccia troppo facilmente" cosa significa che si cruccia? "Question 11: Gets upset too easily." What does it mean to "get upset"?
12. "Domanda 13: deve essere controllato con maggiore attenzione rispetto agli altri compagni di gioco" io non lo so questo me lo devono dire le maestre "Question 13: Needs more supervision than other playmates." I don't know; the teachers would have to tell me this.
13. "Domanda 17: Ripete gli stessi errori più e più volte anche dopo che gli/le è stato dato aiuto". In che senso? "Question 17: Repeats the same mistakes over and over, even after being given help." What does this mean?
14. "Domanda 24: Ha difficoltà nel seguire routine stabilite per dormire, mangiare, o svolgere attività ludiche" noi non abbiamo molte routine, a volte però non vuole andare a dormire e fa i capricci, cosa metto? "Question 24: Has difficulty following established routines for sleeping, eating, or playing." We don't have many routines, but sometimes she doesn't want to go to bed and throws tantrums. What should I put?
15. "Domanda 31: le reazioni di ira o pianto sono intense ma finiscono all'improvviso" in che senso? Quando la mia piange non si tranquillizza proprio subito "Question 31: Her reactions of anger or crying are intense but stop suddenly." What does this mean? When she cries, she doesn't calm down immediately.
16. "Domanda 33: non si accorge quando il suo comportamento provoca reazioni negative" lui se ne accorge ma attua quel comportamento perché sa della reazione degli altri, cosa metto? "Question 33: Doesn't realize when her behavior causes negative reactions." She knows, but she acts that way because she's aware of others' reactions. What should I put?
17. "Domanda 35: ha difficoltà nel cambiare attività" cosa significa che ha difficoltà nel cambiare l'attività? "Question 35: Has difficulty transitioning between activities." What does it mean to have trouble transitioning activities?
18. "Domanda 37: dimentica cosa sta facendo nel bel mezzo di un'attività", cosa significa? "Question 37: Forgets what she's doing in the middle of an activity." What does this mean?

19. "Domanda 38: Non si rende conto che certi comportamenti infastidiscono gli altri" lei lo capisce ma non le importa, cosa metto? "Question 38: Doesn't realize when her behavior annoys others." She knows but doesn't care. What should I put?
20. Che differenza c'è tra la domanda 44 "non riesce a trovare delle cose nella stanza o nello spazio in cui gioca anche se gli/le vengono date precise istruzioni" e la domanda 19 "non riesce a trovare vestiti, scarpe, giocattoli o libri anche quando ha ricevuto informazioni precise su dove cercarli"? Fanno entrambe riferimento a cercare oggetti in stanze nonostante siano date precise informazioni What's the difference between question 44: "Can't find things in the room or space where she's playing, even when given clear instructions" and question 19: "Can't find clothes, shoes, toys, or books, even when given clear instructions on where to look"? Both seem to refer to finding objects in rooms despite being given clear instructions.
21. "Domanda 53: Non utilizza al massimo le sue capacità quando svolge un'attività" come facciamo a saperlo? Come potrei misurarlo? "Question 53: Doesn't use her full abilities when completing a task." How can we know this? How can I measure it?
22. "domanda 54: Ha difficoltà a calmarsi nonostante gli/le sia stato chiesto di farlo" lei se le dici di calmarsi non si calma ma basta un abbraccio per farla tranquillizzare, cosa metto? "Question 54: Has difficulty calming down even after being asked to do so." She doesn't calm down when asked, but a hug is enough to soothe her. What should I put?
23. "Penso che le domande 55 e 63 sono troppo specifiche per bambini di 2 anni, oppure sono abilità che il bambino dovrebbe avere già acquisito?" "I think questions 55 and 63 are too specific for 2-year-olds, or are these abilities the child should already have acquired?"
24. "Penso che le domande 55 e 63 sono troppo specifiche per bambini di 2 anni, oppure sono abilità che il bambino dovrebbe avere già acquisito?" "I think questions 55 and 63 are too specific for 2-year-olds, or are these abilities the child should already have acquired?"

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