

Exploring Pragmatic and Linguistic Development Trends in Early Preschool Children

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Research Article

Volume 2 Issue 1

Received Date: November 24, 2016

Published Date: January 24, 2017

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Abstract

Purpose: It is proposed that pragmatic skills play an important role during the language development, in particular in social interactions with conversational partners. The purpose of this study is to investigate the relationship between pragmatic and linguistic skills in a longitudinal perspective, assuming that social-conversational abilities at early stages are associated with the child's linguistic development.

Method: In a group of 7 Italian children aged from 27 to 36 months, it was measured every three months (i.e., 28, 31 and 34 months) the assertiveness and responsiveness of children during the interactions with the adult via The Social Conversational Skills Rating Scale - Italian version and the vocabulary size, the M3LU and sentence complexity via MacArthur-Bates CDI. Individual profiles and communication development trajectories of the children are investigated. Further correlational analysis was performed to examine the relation between pragmatic aspects and linguistic abilities.

Results: Analysis showed significant differences in the developmental trajectories of each subject. Comparisons of social-conversational variables with linguistic skills point out positive correlations across the three observation times.

Conclusion: Despite the sample is too small to draw definitive conclusions, these results suggest the importance of pragmatic assessment in language evaluation; however further researches are necessary to confirm these results.

Keywords: Language development; Pragmatic abilities; Preschool children; Longitudinal study

Introduction

The current study examines pragmatic and linguistic abilities in a group of 7 Italian preschool children in a

longitudinal evaluation. Studying the development of pragmatic abilities is a renewed topic for researchers, who moved the focus from the purely linguistic and structural aspects of communication to more

psychological and social characteristics. Pragmatic skills are the base for a proper communication: they consist in knowing how to properly use the language according to the context and the different interlocutors. These abilities support the development of language acquisition during the first years of life, becoming the central element that underlies and sustains all the levels of linguistic abilities. Prerequisites of pragmatic abilities, such as joint attention, imitation, socio-emotional engagement and intersubjectivity, were by now investigated in infants [1,2] and they showed that joint attention and intersubjectivity deeply influence children's early lexical development and that joint attention and imitation mediate social-conversational skills [3].

According to Matthews [4] pragmatic competence is a set of cross abilities which lies on different cognitive and social processes. Social environment is therefore the best place to practice with language, especially during a conversational context. Much of a preschooler's conversation occurs within the mother-child dialog [5]: acquiring the conversational rules indeed is easier with an adult as partner, especially the parents who create, lead and control the dialog assuming at the same time the role of scaffolding with the child. With them the toddler learns the basic rules of conversation, as respecting the turns, responding the questions, initiating a new topic or maintaining the coherence of the topic [6]. At 24 months, a toddler is generally able to respond to the interlocutor and to engage in short dialogs of a few turns; he/she can also introduce or change the topic of discussion although in a limited way. At the beginning, only the 30% of dialog consists in opening or initiating behaviours, while the 60% of responding behaviours [6]. At this age, it is also difficult to maintain an argument over the two conversational turns; this ability improves by 3 years of age. On the contrary, the respect of the turns appears to be a feature already acquired in early childhood, as showed time ago [7]. Maintaining the turns in a conversation is a behaviour that depends on the recognition of several factors in the participants, a number of cues (prosodic, linguistic, non-verbal and visual) that indicate that the intention of the speaker is to finish speaking [8].

Different studies investigated pragmatic development in pre scholars, however, currently there is a lack of researches examining social-conversational skills in samples with typical and atypical language development, above all in Italian speakers children. According to Fey's theory [9], conversational skills in very young children include two separate abilities: assertiveness, which comprises behaviours like initiate topics and make requests, non-verbally and verbally; responsiveness or

the ability to respond verbally or non-verbally to a communication partner and maintain topics for successive turns. He moreover distinguished four conversational profiles, established on the basis of the frequency of acts, if responsive or assertive: the *passive talkers*, exhibiting more frequently responsive communicative acts rather than assertive and are not able to start a conversation; the *active talkers*, exhibiting both assertive and responsive acts well balanced; the *inactive talkers*, who have a low level of both assertive and responsive behaviours and finally *not communicators*, which are highly assertive but not responsive, showing a communication not coherent on the requests of the interlocutor [10]. Literature emphasizes that children active talkers, exhibiting both responsive and assertive behaviours, have more opportunities to practice the language as they stimulate inputs that they can also learn from [11]: the pragmatic skills effectively make that the child searches more exchanges with the adult, who in turn provides more opportunities to learn and improve the language. Therefore, the way the children participate in conversations influences the quality and the quantity of language feedback from the caregivers. As for the studies with Italian children, Callegari in Bonifacio et al. [10] reported that a sample of preschool children with typical language development (aged 23-26 months) showed a positive correlation between the amplitude of expressive vocabulary and parameters of assertiveness and responsiveness in two different observation times. Finally, other recent studies that evaluated assertiveness and responsiveness in children with typical language development showed how social-conversational competences increase significantly with age, and yet those assertive develop more slowly than responsive ones [6].

About longitudinal studies, Hvastja-Stefani [12] explored lexical and pragmatic development of Italian children in the second year of life, via the Primo Vocabolario del Bambino inventory (PVB) and the PICA parental interview Parental Interview on 100 Communicative Acts, Ninio and Goren,[13], used to assess 100 communicative acts. The results showed positive correlations between the growth of the vocabulary size and the growth of pragmatic skills, with an increasing correlation as the age increased. Pragmatic features may also be predictive of future language development. Smith [14] observed early pragmatic behaviours (such as imitations, receptive, deictic, play, enactive and instrumental) in 145 10-month-old infants during an early screening. A subset of these behaviours was predictive of later communicative competence assessed at age 24 and 36 months: in particular, initiating interaction, sharing experience, seeking assistance and providing interactive feedback. Children with language difficulties at

24 months tended to show these problems over the successive 12-month period. Pragmatic behaviours have correctly predicted a high percentage of these children found to have language impairments. Other studies revealed that the ability to segment conversational speech is an important prerequisite for successful language development: this skill, measured at 12 months in infants, was related to successive expressive vocabulary at 24 months and with linguistic measures at 4-6 years of age [15].

The study of pragmatic perspective in atypical language development is also still insufficient. Different studies [16,17] showed that children with language delay, exhibited social-communicative abilities under the standards compared to children with typical language development: they showed less involvement in interactions with their interlocutors, both in receptive and expressive level, and were reluctant to initiate the dialogue. In a study of social interaction skills, Rescorla and colleagues [18] reported that children with language delay partially recovered the differences in initiation skill by 3 years of age, however, they asked fewer questions and provided fewer answers to mothers' questions in comparison with peers with typical language development.

More recently, Bonifacio and colleagues [19], explored social-conversational abilities in a group of Italian late talkers compared to a group matched for age and a group matched for vocabulary size. Children with language delay showed significantly lower ratings for both assertiveness and responsiveness compared to their peers but they did not differ from the vocabulary size group. Vuksanovic [20] explored the relationship between language development and the social interaction in a group of late-talking children in a longitudinal perspective: results showed that late talkers were less active in starting social interaction but, once involved, they respond similarly to typically-developing children matched for expressive vocabulary.

Therefore, early diagnosis of language impairments is crucial to intervene immediately, in order to make interventions that improve language development in the early stages. A good predictive model should combine all the factors that could represent a risk for persistent language impairments, in order to avoid any future clinical implication. Several researchers stated the importance of a thorough assessment of communication development in children [8,21] that includes the pragmatic abilities. Also the American Speech-Language and Hearing Association (ASHA) recommends that pragmatic language assessment might be part of a

complete communication analysis; however, data indicates this area is not assessed in a majority of children [21]. This study intends to propose an integrated view in the evaluation of language development, reflecting on what (and when) the pragmatic skills may play a decisive role in identifying, together with the linguistic parameters internationally agreed, any issue of language development.

The Study

The purpose of this study was to assess social-conversational abilities measured in assertiveness and responsiveness behaviours in 7 Italian-speaking preschool children with typical language development (TLD) in a longitudinal perspective. The first aim is to trace the individual trajectories of communication development; in second hand, we wanted to examine the correlation between the pragmatic skills and the linguistic abilities over the time, presuming that assertiveness and responsiveness may play an important role on the linguistic production development at this age.

Methods

Participants

At the beginning, the participants were 8 children monolingual Italian speakers, 5 males and 3 females (aged from 27 to 36 months for the whole period of longitudinal assessment); of this group, only 7 subjects were included in the study because one of the males recruited showed a language delay (expressive vocabulary equivalent or below to the 10th percentile).

Parents, who are all Italian native speakers, provided written informed consent to the research. These families were recruited locally from researcher's connections and all the administrations were collected at families' homes by an experimenter. The parents were additionally asked to provide information relating to socio-economic status (SES) and to peri- and post-natal history of the child. According to Hollingshead's index [22], SES of the families was evaluated in the medium-high range. As for the children anamnesis, parents did not report any neurodevelopmental disease or problems. Two subjects are first-born children; the others are second or successive born. All the children attend the nursery school and are not exposed to other languages rather than Italian.

Instruments

Pragmatic and language abilities were measured from two parental report questionnaires (usually filled in by

the mothers): PVB - Primo vocabolario del bambino - "Parole e frasi" form, long version [23], the Italian version of the MacArthur-Bates Communicative Development Inventory [24], that assesses expressive vocabulary, morphological and syntactic development. For this study, the following aspects were analysed: 1. Vocabulary size; 2. Mean length of the three longest utterances (M3LU), based on the mean of three longest intelligible utterances of the child given from the parents [25,26]; 3. Sentence complexity, based on a list of 37 couple of sentences, whose one is "complete style" and the other one is "telegraphic style".

Questionario ASCB - Le Abilità socio-conversazionali del bambino [6], Italian version of the Social-Conversational Skills Rating Scale [27], this is a 25 items questionnaire in which parents evaluate the child's social-conversational abilities, according to frequency of assertive and responsive behaviours during conversational exchanges. Fey [9] distinguished these two separate abilities, assertiveness and responsiveness, depending on the role played by the speaker in the dyadic interaction: in the assertive conversation the initiative comes from the child, who makes requests and proposes new topics or activities, in the responsive conversation the child responds to the partner's initiative and maintains the topic for the successive turns. The child may show these behaviours verbally or non-verbally. The comparison of the mean scores with normative values allows to do a quantitative and a qualitative analysis, in the first case considering the social-conversational skills as immature, in line with the age or advanced according to the average score obtained in each scale; as regards the qualitative evaluation instead, it is possible to observe the balance of assertive and responsive behaviours in order to obtain a conversational profile for each child within the analysis of the individual patterns.

Procedure

All the measures described before were assessed for three time during the longitudinal study, each testing was repeated every three months (mean age T1: 28 months; T2: 31 m.; T3: 34 m.).

The children were first administered with a standardized non-verbal performance scale, the *Leiter International Performance Scale Revised; VR battery* [28], in order to evaluate non-verbal intelligence quotient and exclude any cognitive delay. Children's mean of IQ was 94.14 (range 85-123).

Linguistic direct assessments to evaluate typical language development included two tests: 1) *TPL -Test del*

primo linguaggio, [29], which measured pragmatic production (range 10th-75th percentile), pragmatic comprehension (range 30th-90th percentile), vocabulary comprehension (range 30th-90th percentile), vocabulary production (range 10th-66th percentile), syntax comprehension (range 40th-90th percentile) and syntax production (range 20th-90th percentile); 2) *PinG -Parole in gioco* [30], which measured noun comprehension (range 5th-75th percentile), noun production (range 25th-75th percentile), verb comprehension (range 5th-90th percentile) and verb production (10th-90th percentile). These tests were administered only once at the first assessment in order to exclude any language delay. They could not be taken into account for the longitudinal assessment because the time between each observation was too short (3 months).

Statistical analysis was carried out with statistical software, SPSS 20 (IBM Statistical Package for the Social Sciences, version 20).

Results

The data collected were divided in two groups of measures: *linguistic abilities*, including Vocabulary size, M3LU and Sentence complexity, obtained from the PVB questionnaire; *social-conversational abilities*, including the two dimensions assessed in the ASCB, Assertiveness and Responsiveness. The results are presented in two sections: a) a qualitative analysis of the developmental trends for the 7 subjects, comparing the average ranks of the measures over the time; b) a correlational analysis of linguistic and social-conversational abilities measures in the three times of observation.

Individual Profiles and Development Trends Analysis

Although the understandable differences emerging from the individual developmental profiles, it is possible to identify positive trends of *linguistic abilities* development that associate the whole group. Results showed an increase of vocabulary size over the time for all the children (trend patterns of individual children are showed in (Figure 1).The words production across age is comparable with the standard, with measures slightly over the mean: at 28 months the vocabulary dimension mean of the group is 464 (range 232-660 words), at 31 months 523 (range 363-663 words), at 34 months 564 (range 414-672 words). These data reveal remarkable interindividual differences but they are consistent with previous studies on Italian language acquisition [31]. Also for M3LU results show an increase of scores over the time

(Figure 2), with large interindividual differences (mean T1 M3LU=7; T2 M3LU=9; T3 M3LU=10) but yet consistent with the standards. As for sentence complexity (measure of morphosyntax), five children reported the highest score (37) since the first assessment (Figure. 3), independently from the sentence style (complete or telegraphic) selected from the parents for which we only have the percentage (T1 mean percentage of complete sentences=67.2%; T2 m.p.=81%; T3 m.p.=81%); so fig. 3 doesn't show any improvement for these individual trend patterns (subjects 3, 4, 5, 6, 7).

According to the *social-conversational abilities*, scoring are roughly in line with the normative standards, both for Assertiveness [T1 range: 3.7-4.9; T2 range: 3.4-5; T3 range: 3.9-5] (Figure 4) and Responsiveness [T1 range: 3-5; T2 range: 3.6-5; T3 range: 4.2-5] (Figure. 5). Subject 1 reported immature responsiveness at T1 but recovered in T2; subject 2 reported immature responsive abilities at T1 as well and immature responsive and assertive skills at T2, but he also recovered in T3. This qualitative view of scorings is useful in order to highlight strong and weak points of the children but they don't represent a clinical cut-off for atypical pragmatic development [10].

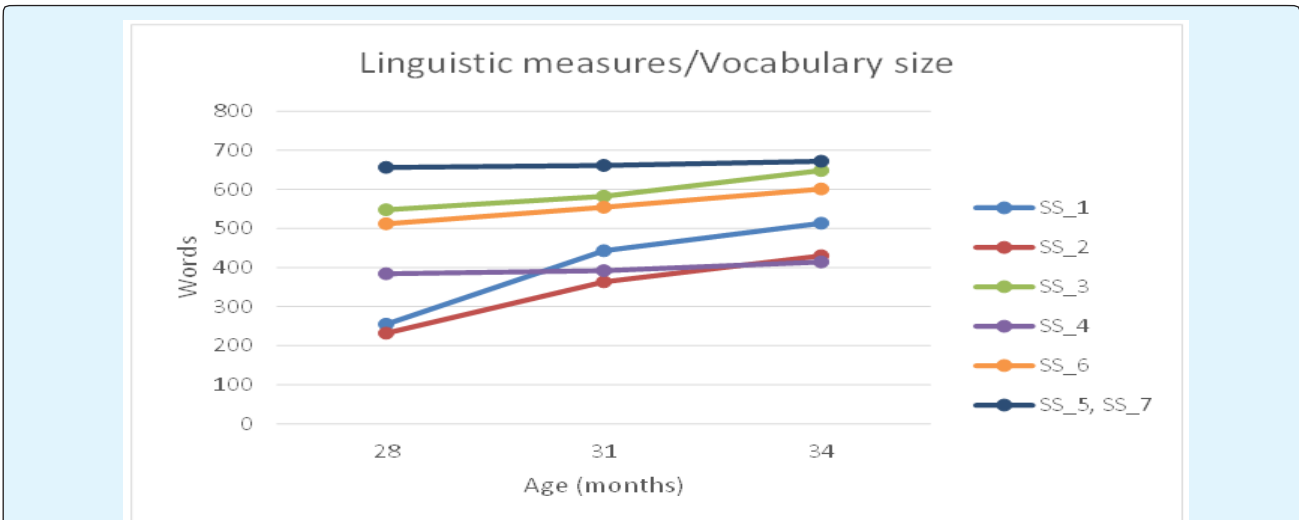


Figure 1: Individual developmental trajectories of linguistic abilities (Vocabulary size measure) across months.

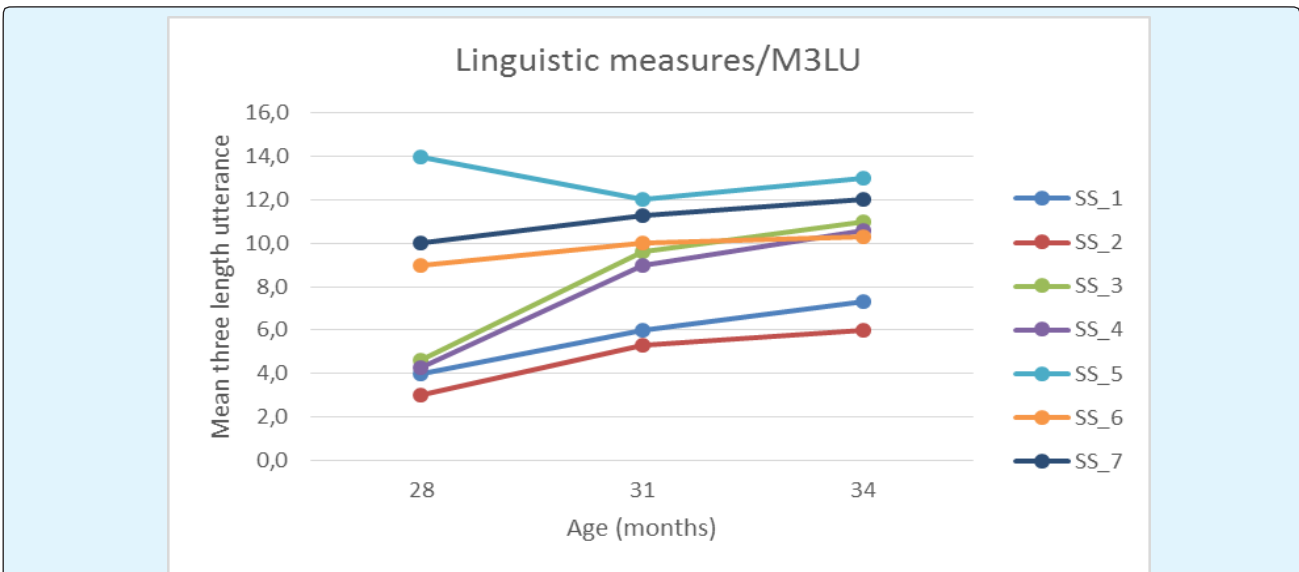


Figure 2: Individual developmental trajectories of linguistic abilities (Mean length of three longest utterance measure) across months.

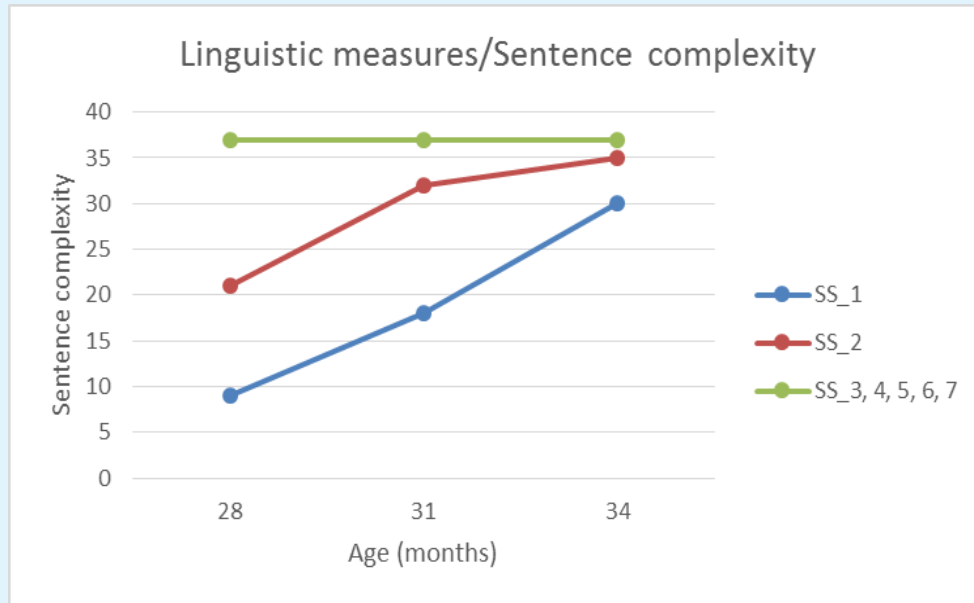


Figure 3: Individual developmental trajectories of linguistic abilities (Sentence complexity measure) across months.

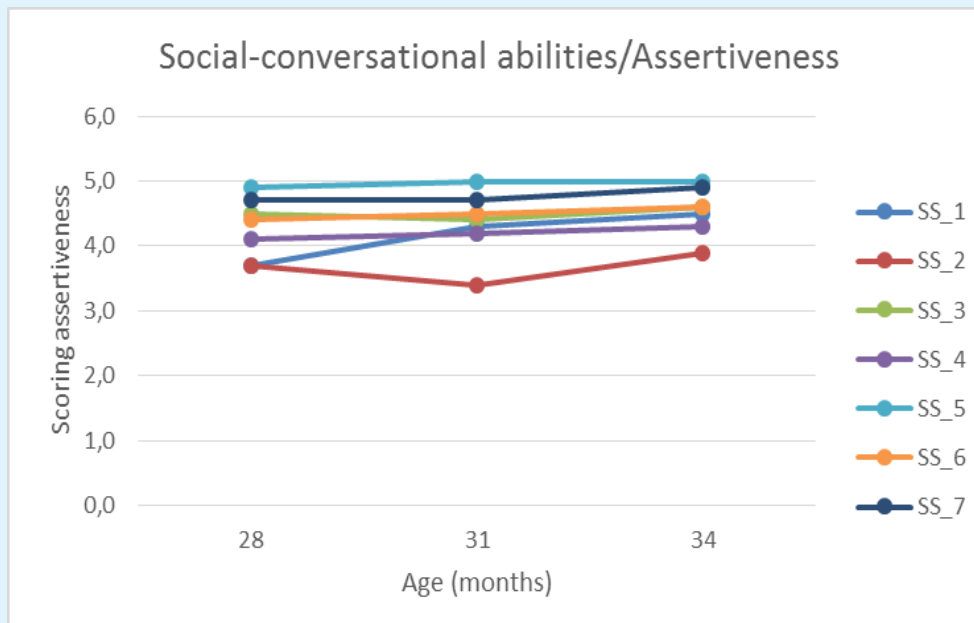


Figure 4: Individual developmental trajectories of social-conversational abilities (assertive behaviours measure) across months.

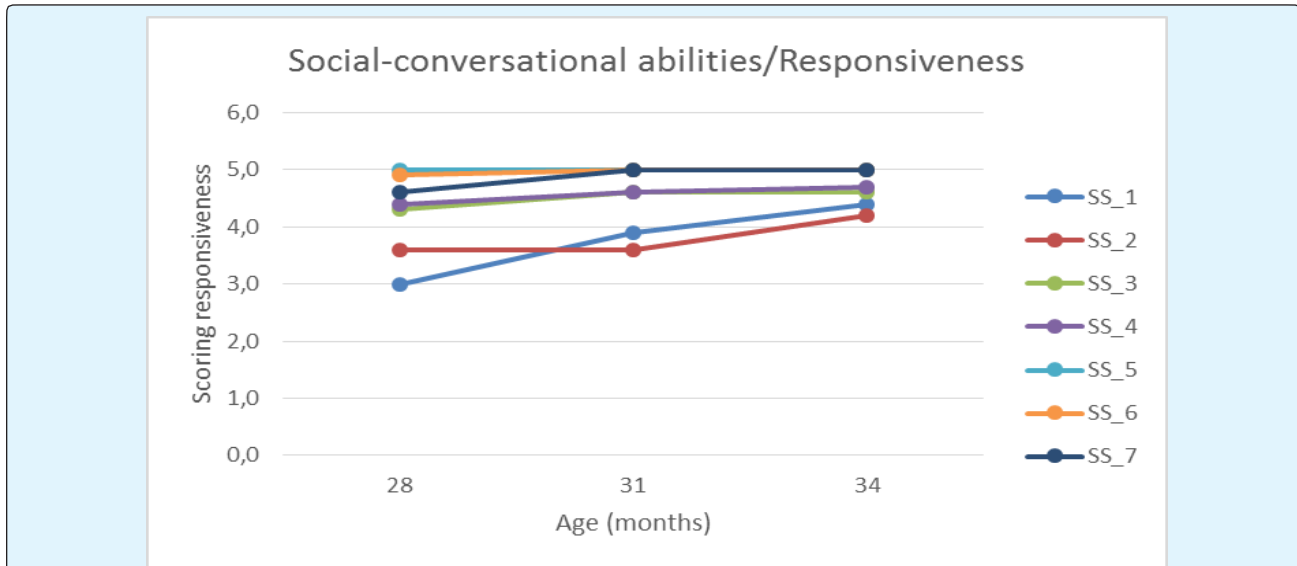


Figure 5: Individual developmental trajectories of social-conversational abilities (responsive behaviours measure) across months.

Non parametric analysis (Table 1) were performed to confirm the actual difference of samples; Friedman's test results revealed significant differences for both linguistic (vocabulary size $\chi^2=14$; M3LU $\chi^2=8.857$; sentence complexity $\chi^2=4$) and social-conversational abilities (assertiveness $\chi^2=10,231$; responsiveness $\chi^2=10.3$) across the assessments (Table 1). A Wilcoxon average ranks test to compare the three observing times indicated significant difference between measures taken at T1 and T3 according to vocabulary size ($Z= -2.366$; $p=.018$),

M3LU ($Z= -2.197$; $p=.028$), assertiveness ($Z= -2.414$; $p=.016$) and responsiveness ($Z= -2.207$; $p=.027$). There were significant differences also between T2 and T3 for vocabulary size ($Z= -2.366$; $p=.018$), M3LU ($Z= -2.371$; $p=.018$) and assertiveness ($Z= -2.232$; $p=.026$); comparisons between T1 and T2 revealed differences between vocabulary size ($Z= -2.366$; $p=.018$) and responsiveness ($Z= -2.023$; $p=.043$). None difference was found for the sentence complexity.

	T1	T2	T3	Chi-Square (Friedman test) [df=2]	p value*	Wilcoxon Signed Ranks Test Sig.
	(Median)	(Median)	(Median)			
Assertiveness	4,4	4,4	4,6	10,231	0,006	T3 X T1 T3 X T2
Responsiveness	4,4	4,6	4,7	10,3	0,006	T2 X T1 T1 X T3
Vocabulary size	512	554	601	14	0,001	T2 X T1 T3 X T2
M3LU	4,6	9,6	10,6	8,857	0,012	T3 X T1 T3 X T2
Sentence complexity	37	37	37	4	0,135	

* $p < .01$, $p < .05$ (2-tailed).

Table 1: Comparison of signed-ranks of the measures across the three time of observation (Friedman test and Wilcoxon test).

Correlational analysis

Correlational analysis (Spearman r) was conducted in order to investigate the relation between linguistic

abilities and social-conversational abilities during the three assessments. Comparing the two groups of variables – linguistic and social-conversational (Table 2), a positive correlation was determined between all the variables at

T1, at 28 months of age. In particular, assertiveness strongly correlated with vocabulary size and M3LU measures while responsiveness with M3LU. At 31 months (T2) there is a significant correlation between assertiveness and vocabulary size and with M3LU, meanwhile responsiveness still correlates with all the

linguistic abilities. At T3 (34 months), results revealed a positive correlation between assertiveness x vocabulary size and M3LU while responsiveness correlated only with sentence complexity.

T1	Assertiveness	Responsiveness	T2	Assertiveness	Responsiveness	T3	Assertiveness	Responsiveness
Vocabulary size	991**	786*	Vocabulary size	964**	805*	Vocabulary size	919**	630
M3LU	955**	893**	M3LU	964**	954**	M3LU	865*	741
Sentence complexity	787*	802*	Sentence complexity	579	793*	Sentence complexity	584	786*

** $p < .01$, * $p < .05$ (2-tailed).

Table 2: Correlations between social-conversational abilities and linguistic abilities at T1 (28 months), T2 (31 months) and T3 (34 months).

It is here highlighted the consistent interaction of social-conversational abilities with all the linguistic abilities at T1, while the following analysis showed a different relation between these two variables: whereas the assertiveness maintain a stable relation with the vocabulary size along all the ages taken into account, responsiveness interacts more significantly with the M3LU and the sentence complexity, that we can define as grammatical measures.

Discussion

The purpose of this study was to explore, in a small group of early preschool children, the development of pragmatic abilities together with the linguistic skills, both measured indirectly via parental questionnaires. The results showed positive developmental trajectories for both social-conversational abilities and linguistic vocabulary size and M3LU. Instead, statistical analysis didn't confirm a positive trend for the utterance complexity, but this is easily clarified because the PVB permits a qualitative interpretation of the sentences style (complete vs telegraphic) and the indirect instruments may invalidate developmental trends [23]. Interindividual differences are still remarkable in particular for linguistic measures, but this is consistent with Italian specialist literature about language acquisition [32].

Social-conversational abilities go at the same pace with the linguistic acquisition and improve over the time, even if assertiveness increases slower than responsiveness: this is in agreement with Bonifacio and colleagues study [19] which underlined how initiating a conversation or a

play, an assertive ability, is a skill that takes longer to develop. In our group, this ability is still lacking at T3, except for one child (subj. 5) who obtained the maximum scoring. Moreover, for a child it is easier to tune with the adult's initiative and respond to him rather than start or proposing an activity. The role of the adult is here crucial because it is up to the parents tuning and paying attention to child's spontaneous initiative: adult's responsiveness play an important role too in supporting conversational abilities in children [33].

According to the correlational hypothesis, the results confirm a strong interaction between the pragmatic aspects and the linguistic development, especially at the first stages of language acquisition: in fact, at the first assessment, when the group is 28 months old, assertiveness and responsiveness correlates both with all the linguistic measures. This data are consistent with the literature [10,12] and suggest that pragmatic competences may have a greater influence on linguistic acquisition. However, these results do not exclude the opposite conclusion, that the language supports the conversational skills improvement and use. In fact, children active talkers and with a rich vocabulary may stimulate more inputs from the caregiver who creates more opportunities to practice in conversational abilities as well.

In any case, first stages, before 30 months of age, seem to be essential for this concurrence. Successively, assertive behaviours maintain the relation with the expressive vocabulary measure, while responsiveness interacts more with the measures of morphosyntax, such as M3LU and sentence complexity. This could suggest that

responsiveness may play a key role during the interactions with the adult, maybe because the latter stimulates the inputs from which the child can learn the use of grammar. On the other hand, assertiveness could interact more incisively with lexicon because a child with a bigger vocabulary feels more confident to take initiative in conversation.

Until now, few studies investigated longitudinally the pragmatic skills in typical development children, especially during the second year of life. This contribute adds a new gaze to the communication development and identifies the centrality of pragmatics in this process [33-35].

This study suggest practical implications especially for the language assessment phase in preschool children: this phase is generally conducted via performance tests, which evaluate the lexicon known from a child and the correspondent percentile of acquisition. We would like to move the focus to the observation of interactions with caregiver, underlining the importance of social-communication skills in the language development. Despite the sample is too small to draw definitive conclusions, these results suggest the importance of an accurate evaluation for both pragmatic and linguistic skills in early stages of language acquisition. Definitely, these outcomes must be taken with prudence and further researches are necessary to confirm these results. Nevertheless, this study wants to pinpoint the importance of including pragmatics testing as best practice in language and communication assessment, especially in the observable contexts of child's daily interaction, in order to detect on time any early communication delay which could then evolve into real language disorders.

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