The Acquisition of Pragmatic Prosody in the Preschool Years: A Brief Review

Mariia Pronina[1*], Iris Hübscher[2,3], Ingrid Vilà-Giménez[1,4] and Pilar Prieto[1,5]

[1]Department of Translation and Language Sciences, University of Pompeu Fabra, Barcelona, Spain

[2]URPP Language and Space, University of Zurich, Zurich, Switzerland

[3]Department of Translation and Language Sciences, Universitat Pompeu Fabra, Roc Boronat, Barcelona, Spain

[4]Department of Subject-Specific Education, Universitat de Girona, Girona, Spain

[5]Institució Catalana de Recerca i Estudis Avançats, Barcelona, Spain

[*]**Corresponding author:** Mariia Pronina, Department of Translation and Language Sciences, University of Pompeu Fabra, Barcelona, Spain, E-mail: mariia.pronina@upf.edu

Abstract

This review summarizes the recent study published in the Frontiers in Psychology journal. The main objective of the study was to investigate the acquisition of pragmatic prosody by preschoolers and to analyze its relation to Theory of Mind (ToM), in doing so bridging the gap between prosody and pragmatics. The current review provides the main study motivation, explains the methods used, briefly presents the results of the study and discusses the main findings by also highlighting the clinical implications of research findings and their importance for building a collective prosodic profile across child populations. Finally, directions for future research in this area are also outlined.

Keywords: Prosody; Pragmatics; Pragmatic prosody; Acquisition; Development; Theory of Mind (ToM), Preschoolers

Introduction

It is well known that prosodic features convey different pragmatic meanings across languages (what we will call "pragmatic prosody"), reflecting intended meanings in context [1-3]. However, relatively little is known about how children acquire these pragmatic uses of prosody [4]. Most developmental research has investigated the initial stages of prosodic development focusing on prosodic abilities in very young infants; for example, the ability to express emotional status or intentionality [5,6]. However, studies addressing the acquisition of prosodic patterns for the expression of pragmatic meanings later in development are still rare. Moreover, previous research tended to analyze specific aspects of the pragmatics-prosody interface such as the prosody of focus [7,8] rather than providing a general overview of children's developmental profile. It is of interest to note that, from the point of view of clinical evaluation, prosodic assessment instruments have generally neglected pragmatic functions of prosody. These instruments mainly evaluate receptive prosodic skills, or very basic expressive prosodic skills. The only tool that considers some pragmatic aspects of prosody is the PEPS-C [9], by assessing the production of statements and questions, the placement of contrastive stress and the expression of some affective stances.

Overall, no previous study or assessment tool has comprehensively addressed the acquisition of pragmatic aspects of prosody. In order to fill this gap, our recently published article aims to investigate the acquisition of pragmatic prosody skills in preschoolers by using a new pragmatic tool, the Audiovisual Pragmatic Test, while also taking into account other potential influencing developmental factors such as Theory of Mind (ToM), which is the ability to understand mental states of others [10] that develops rapidly during the preschool period.

Literature Review

A total of 102 (45 boys and 57 girls) typically-developing, Catalan-speaking children aged between 3 and 4 years (Mage=44.92 months, SD=3.29 months) participated in the study. Participants were recruited in two public schools in Barcelona and came from middle socioeconomic background, as confirmed by the occupational status questionnaire filled out by their. No speech, language or hearing deficit was reported.

The children's pragmatic prosody skills were assessed by means of a new comprehensive measure of children's communicative uses of prosody, the Audiovisual Pragmatic Test (APT) [11]. This test assesses expressive prosody in relation to social contexts by using a picture-supported set of scenarios in which the participant is asked to imagine an everyday social context and then to respond to it as naturally as possible. All items intended to elicit a pragmatically appropriate phrase or set of phrases which correspond to a certain speech act. We distinguish between 4 types of speech acts, specifically, assertions; requests; basic expressive acts such as greeting, calling or thanking; and complex expressive acts that evolve around complex social situations like expressing empathy, compassion, condolence or congratulations. Requests and

assertions can be either unbiased or biased. Unbiased requests and assertions have no additional pragmatic meanings (e.g., an example of an unbiased request is a command; an example of an unbiased assertion is an unmarked declarative statement). Biased requests and assertions convey additional pragmatic biases such as different types of epistemic meanings (e.g., a biased request expressing incredulity or a biased assertion expressing obviousness or uncertainty), marked informational structure (e.g., a biased assertion conveying contrastive focus), or negation. The children were tested individually in a quiet classroom. The prosodic component of the answer was evaluated perceptually in terms of the appropriateness of the prosody and was scored as felicitous, infelicitous or indirect speech. (i.e., embedded responses not eligible for the prosodic scoring, such as "I would say that..."). Two independent raters coded a subset of data (25%) and a high degree of inter-rater reliability was found for both pragmatic and prosodic scores. Fleiss Kappa was 0.79 (p<0.001) and 0.81 (p<0.001) for pragmatic scores and prosodic scores correspondingly.

The children were additionally tested on their ToM abilities. The two classic false belief tasks, the unexpected content task [12], and the unexpected location task an adapted version [13], were used. The child was awarded 1 point for each correct answer to the control and the false belief question, the total scores ranged from 0 to 4.

Results

The first analysis assessed the role of speech act type on the production of prosodically appropriate cues in order to sketch out a collective profile for the pragmatic prosody skills of preschool children. Results were reported in terms of the percentages of appropriate prosodic answers that were pragmatically correct in a given context, that is, the number of appropriate prosodic patterns produced by children for a specific speech act type. Overall, results showed that preschoolers can produce a variety of speech acts in speech. The speech acts with higher rates of prosodic accuracy were unbiased assertions (33%), basic expressive acts (32%), and unbiased requests (24%). By contrast, biased assertions, complex expressive acts, and biased requests obtained less appropriate answers (16% at most). Linear mixed-effect models showed that children produced significantly more unbiased than biased speech acts (β=-0.358, t=-2.820, p=.010) and significantly more basic expressive than complex expressive acts (β=-0.559, t=-3.389, p=.007). Besides, there were differences in the acquisition of epistemic meanings. For instance, children were able to express surprise (e.g., "What's this?!"; 49%) and a confirmatory-seeking request (e.g., "Are you hungry?"; 21%), but tended to have more difficulties with such epistemic meanings as obviousness (e.g., "It's here (of course)"; 16%), uncertainty (e.g., "Maybe he's ill"; 7%) and incredulity (e.g., "Wait, who won the competition?!"; 1%).

The second analysis focused on the relationship between pragmatic prosody, ToM and age (in months). Results showed that neither ToM nor Age were predictive of the children's prosodic scores. The separate analyses on different speech act categories showed that ToM was not a significant predictor of prosodic performance for any speech act.

Discussion

The general findings by Pronina, et al. [14] enabled the outlining of a collective prosodic profile of Catalan-speaking young preschoolers by showing that they deal well with the prosodic expression of basic pragmatic meanings, such as basic expressive and unbiased speech acts, but struggle with the production of prosodic cues for complex expressive acts and pragmatic biases, such as information structure or belief states. Overall, young preschool children make use of different prosodic strategies to encode different pragmatic meanings, with different degrees of competence depending on the pragmatic area. Further research is needed to understand the route of acquisition of other linguistic means to mark these pragmatic areas and the role of prosody as a potential precursor element. Our study also shed some light on the relationship between children's expressive prosodic and ToM abilities, showing that ToM alone cannot explain and predict prosodic performance. These results support previous research in non-typically-developing children [15,16] but more research is needed to assess the role of other socio-cognitive and linguistic factors in this respect.

Importantly, our study is the first to provide a comprehensive picture of young preschooler's pragmatic prosody abilities. Although not all preschoolers were able to finish the task, the APT, which was designed to examine the acquisition of pragmatic prosody skills in children starting from the early preschool age, still facilitated the gathering of a large corpus of pragmatically-based prosodic data. We suggest that the APT may prove a useful tool in the developmental pragmatics, as it can be used to elicit semi-spontaneous speech in different social scenarios across individual children and child populations. Future studies could use the APT to track the development of pragmatic prosody and to investigate profiles of prosodic developmental patterns including those of older children and possibly non-typically-developing children.

Conclusion

The study has also demonstrated the importance of the joint assessment of pragmatics and prosody and, in this ways, we believe that clinical prosodic tools should try to include a more comprehensive evaluation of speech prosody that integrates a broader range of pragmatic functions. From a practical point of view, we consider that an exhaustive assessment of children's pragmatic prosody profile might be relevant in detecting and diagnosing pragmatic deficits.

Reference

1. Gussenhoven C (2004) The Phonology of Tone and Intonation. Cambridge University Press.

2. Ladd DR (2008) Intonational Phonology. In Intonational Phonology. Cambridge University Press.

3. Pierrehumbert JB, Hirschberg J (1990) The Meaning of Intonational Contours in the Interpretation of Discourse. In P. Cohen, J. Morgan, & M. Pollack (Eds.), Intentions in Communication 273-311.

4. Chen A, Esteve-Gibert N, Prieto P, Redford MA (2020) Development of Phrasal Prosody From Infancy to Late Childhood. The Oxford Handbook of Language Prosody.

5. Esteve-Gibert N, Prieto P (2018) Early development of the prosody-meaning interface. In P. Prieto N. Esteve-Gibert The Development of Prosody in First Language Acquisition 227-246.

6. Frota S, Butler J (2018) Early development of intonation. In Prieto P, Esteve-Gibert N, The Development of Prosody in First Language Acquisition 145-164.

7. Chen A (2018) Get the focus right across languages: Acquisition of prosodic focus-marking in production. Prieto P, Esteve-Gibert N, the Development of Prosody in First Language Acquisition 295-314.

8. Ito K (2018) Gradual Development of Focus Prosody and Affect Prosody Comprehension. In Prieto P, Esteve-Gibert N, The Development of Prosody in First Language Acquisition 23: 247-270.

9. Peppé S, McCann J (2003) Assessing intonation and prosody in children with atypical language development: the PEPS-C test and the revised version. Clinical Linguistics & Phonetics 17: 345-354.

10. Premack D, Woodruff G (1978) Does the chimpanzee have a theory of mind? Behavioral and Brain Sciences 1: 515-526.

11. Pronina M, Hübscher I, Vilà-Giménez I, Prieto P (2019) A New Tool to Assess Pragmatic Prosody in Children: Evidence from 3-To 4-Year-Olds. Proceedings of the 19th International Congress of Phonetic Sciences. 3145-3149.

12. Gopnik A, Astington JW (1988) Children's understanding of representational change and its relation to the understanding of false belief and the appearance-reality distinction. Child Dev 59: 26-37.

13. Armstrong ME, Hübscher I (2018) Children's development of internal state prosody. The Development of Prosody in First Language Acquisition 271-293.

14. Pronina M, Hübscher I, Vilà-Giménez I, Prieto P (2021) Bridging the gap between prosody and pragmatics: The acquisition of pragmatic prosody in the preschool years and Its relation with theory of mind. Front Psychol 12: 29-62.

15. Chevallier C, Noveck I, Happé F, Wilson D (2011) What's in a voice? prosody as a test case for the theory of mind account of autism. Neuropsychologia 49: 507-517.

16. Colich NL, Wang AT, Rudie JD, Hernandez LM, Bookheimer SY, et al. (2012) Atypical neural processing of ironic and sincere remarks in children and adolescents with autism spectrum disorders. Metaphor Symb 27: 70-92.