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**The Development of Reference Ability:
A Comparison between Children with SLI and
Children with Normal Language Development**

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ABSTRACT

This study focuses on the development of reference ability using pronouns among kindergartners and second graders from two populations: children with typical development and children with specific language impairment (SLI). Children with SLI have great difficulty in using language as a mean of communication, and as a result have difficulties in understanding and expressing a verbal message. One of the means for normal verbal communication is referring, which makes the text more coherent. Referring arranges the way in which the different entities are mentioned and presented in the text, such that the addressee can clearly and properly identify who and what is referred to along the entire text. Referring includes several aspects from different fields of language which influence its correct use and understanding: a morphological aspect, a semantic-pragmatic aspect, and a syntactical aspect.

Pronouns are a special type of words and they create a complex system, whose understanding is essential for conducting a conversation: they replace nouns, can belong to different categories, and therefore do not have a fixed meaning. Pronouns encode discourse roles of the speaker, of a present and a concealed presence. Some pronouns can be understood at the level of the sentence, whereas others can be understood only at the level of the discourse, according to their relations with adjacent sentences. This is why understanding pronouns is a difficult task for children.

The literature presents studies that tested expressive reference ability using pronouns. However, research on understanding is sparser, and the reported findings are not conclusive. There exists partial information on the reference ability among children, and even less information on the reference ability among children with SLI. The present study focused on two aspects in which research is lacking: the influence of elision elements (a null type sentence) and the influence of pronouns conjoined to prepositions

on the reference ability, among children with typical development and among children with SLI. Elision of the subject of the sentence, which comprises part of referring, is common in spoken discourse, and even more so in written discourse, and an understanding of this mean of referring is therefore central to the understanding of discourse and to understanding a written text. The influence of the elision of the subject of the sentence on the reference ability has not been tested in Hebrew to date, nor whether children with SLI exhibit a delay in this linguistic aspect compared to other children. The present study aims to address this issue and to test the reference ability using elision elements.

Conjoined pronouns do not have a separate Hebrew parallel. Because these conjoined forms are common in the language and are essential for using it, the acquisition of inflected prepositions, including conjoined pronouns, begins at a young age. Mastery of the declination of prepositions that express basic relations (“on”, “the”, “from”) is established by age 5-6, whereas mastery of “such as” and “without” is achieved later (Ravid, 1995). The **expression** of pronouns conjoined to prepositions (“on”, “the”, “from”, “such as”, “without”) was tested among Hebrew-speaking children, and an increase in the rate of normative expressions was found with age, among children with typical development (Ravid, 1995). However, the **comprehension** of pronouns conjoined to prepositions has not been investigated to date, and there is no information on the manner in which this understanding develops. The present study focused on the reference **ability** using pronouns conjoined to five prepositions – “on”, “the”, “from”, “such as”, “without”.

The reference ability combines abilities from different linguistic areas. It also requires non-linguistic knowledge, such as general knowledge and knowledge on the situation, for understanding. This is why referring can serve as a window for testing

abilities in these fields and for analyzing and characterizing the difficulties of children with SLI in the various fields of language. Additional data are necessary that will enable mapping the reference ability among children with SLI at different ages, and will enable comparison of its development among children with SLI and children without language difficulties. Using pronouns to map the reference ability will help educators analyze when difficulties in understanding a spoken or written text stem from a difficulty in the reference ability.

In our study we tested two defined age cohorts – kindergartners and second graders – contrary to prior studies that investigated non-uniform age cohorts. These age cohorts were chosen in order to test the difference in reference ability before and after orderly learning in school, and to enable learning about the developmental course of the two cohorts, and the influence of reading acquisition on these two cohorts. In the present research, an identical methodology was used for both populations, of pointing to the picture that is compatible with a sentence that was voiced.

The importance of this study lies in sharpening existing knowledge on referring using pronouns, with strict use of a consistent methodology for the research groups and the age cohorts. Our study adds new data which advance the question of the difficulty of children with SLI to perform referring using pronouns.

The research population included 83 participants – kindergartners and second graders, who belong to two groups: 44 children with typical development and 39 children with language impairments who underwent psychological and linguistic testing and were diagnosed as having specific language impairment (SLI). These participants were identified within special education frameworks (“language kindergarten” or “class for children with learning disability”).

The research instruments included: pattern reasoning subtest (from the K-ABC test), auditory associations subtest (from the ITPA test), and a test that was constructed specifically for the current study, whose goal was to test reference ability using pronouns. This test includes a series of 50 items in which referring is made using pronouns and using pronouns conjoined to prepositions.

The results of the reference tests showed that the achievements of the participants with typical development were significantly higher than those of the participants with SLI. It was further found that the achievements of the second graders were significantly higher than the achievements of the kindergartners. No significant differences were found between the research groups among the kindergarten-aged participants when testing differences between the research groups in each age group separately. In contradistinction, among second graders the achievements of the participants with typical development were significantly higher than those of the participants with SLI.

The results of the reference subtests demonstrated that the achievements in the reference subtest of sentences with subject elision were not significantly different from the achievements in the subtest of sentences without subject elision. However, the mean achievement among the participants with typical development was significantly higher than the mean achievement among the participants with SLI. Furthermore, the achievements in the reference subtest were significantly higher among the second graders than among the kindergartners.

The results of the reference subtest demonstrated significant differences in achievements in all the prepositions (except in the preposition “from”) among participants with typical development and participants with SLI. In all prepositions, except the preposition “from”, the achievements of the participants with typical

development were significantly higher than those of the participants with SLI. Furthermore, the achievements of the second graders were significantly higher than those of the kindergartners, for all prepositions. When the differences between the research groups were tested for each age cohort separately, no significant differences were found among the kindergartners in the prepositions “such as” and “without”, whereas among the second graders these differences were significant. Thus, a similar pattern to that found in previous studies on referring expressions using pronouns conjoined with prepositions was found regarding a difference between prepositions that express basic relations (“on”, “the”, “from”), and later prepositions (“such as” and “without”) (Ravid, 1995).

An identical result was obtained along the entire study for the response times, which were significantly shorter among second graders than among kindergartners. No difference in response time was found between the research groups (typical development, SLI).

The findings show a different development of reference ability among children with typical development and children with SLI. The gap between the two research groups increased in second grade, and indicates a developmental pattern described by the Deterioration Hypothesis. According to this hypothesis, the starting point of children with SLI is identical to that of children with normal language development, but over time their achievements decrease compared to those of children with typical development (Law, Tomblin, & Zhang, 2008).

The present study makes a great contribution to understanding the manner in which young children decipher referrals made using pronouns. Its main importance is in the addition of data on children with SLI and their reference ability at two different time points – before orderly exposure to learning how to read and after this point. In the

present study, a difference was found between children with typical development and children with SLI in their ability to decipher references made using pronouns, and even presents a different manner of development of reference ability among the two groups. Second graders with SLI have lower reference ability when using pronouns, and their ability is even lower than that of kindergartners with typical development.

There is currently no methodical instrument for testing reference ability in Hebrew, and the research data and the instrument that was developed for this study thus improve the diagnostic ability of the professionals in this field. The instrument enables rapid testing of reference ability, is easy to administer, and contains data on the achievements of children from two age cohorts – among a population of the children with typical development and among children with language disability.

In practical terms, it is important to understand the centrality of references made using pronouns for the understanding of texts. The difficulty that reference ability adds to the understanding of texts and their reading should be taken into account. This is particularly important for children with SLI who may fail in understanding a text due to a difficulty in their reference ability. Teachers and educators should know how to approach this difficulty, and when necessary train the children in the reference ability. Learning materials in which references in the text are adapted to the child's understanding ability can be developed, such that they will aid in a better understanding. Kits for practicing reference ability and new pictures that will be adapted to the children will enable training children to actively search for the referent (to which the reference refers) already at kindergarten age. Such practice can help them overcome the challenge posed by references made using pronouns.