The Correlation between Phonological Spelling Errors and Language Development in Hebrew-Speaking Children

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Abstract
Written language is based on linguistic knowledge, and thus children with language impairment, primarily phonological impairment, may have difficulties in learning literacy. In this study, the spelling of phonologically impaired Hebrew-speaking children is compared with that of typically developing children. Twenty-five children participated in the study and were divided into four groups: children with typical development (n = 7, 2nd grade), language impaired (n = 7, 3rd to 5th grade), phonologically impaired (n = 7, 3rd to 5th grade), and children who have a history of phonological impairment (n = 4, 3rd to 5th grade). The results are compatible with previous studies that found that spelling correlates with phonological abilities.

Keywords
phonological impairment; spelling; phonological processes; complexity; Hebrew

1. Introduction
Recent research has revealed a close connection between children’s development of spoken language and written language, and the importance of language acquisition to basic reading and writing skills (Kamhi and Catts 1999, Bourassa and Treiman 2001). Moreover, writing is regarded to be the forth language skill to develop within a child, after three prime developmental prerequisites: understanding, speaking and reading (Ezer 1991).

This paper examines the spelling errors of Hebrew-speaking children, comparing among four groups of children: children with typical development, language impaired, phonologically impaired, and children with a history of phonological impairment. The discussion concentrates on phonological spelling errors, which correlate with phonological processes in the course of language acquisition (e.g. coda deletion, consonant harmony). The results suggest that
children with phonological impairment (in the past or the present) have more spelling errors than younger typically developing children as well as children with language impairment, though the children with current phonological impairment have more errors than children with a history of phonological impairment.

2. Phonology and Spelling

This section provides a brief review of the phonological processes (§2.1) and types of spelling errors (§2.2) found in typical and atypical populations. It then discusses the relation between phonological impairment and spelling skills (§2.3).

2.1. Phonological Process in Acquisition

2.1.1. Typical Development

Children’s productions of Hebrew words, compared to those of adults, reveal various phonological processes occurring at all levels of representation. Processes at the segmental level include substitution of segments (e.g. vilôn → [bilôn] ‘curtain’, kof → [tof] ‘monkey’), assimilation/harmony (e.g. dégel → [dédel] ‘flag’, dúbi → [ búbi] ‘bear’), and metathesis (e.g. patís → [tapís] ‘hammer’, kise → [sike] ‘chair’). Processes at the syllabic level include consonant omission (e.g. glída → [gída] ‘ice cream’, bakbúk → [babú] ‘bottle’), vowel insertion (e.g. dli → [delí] ‘bucket’), and coalescence (e.g. trufá → [kufá] ‘medicine’). At the prosodic word level, there is syllable omission (e.g. kadúr → [dur] ‘ball’). These processes gradually disappear in the course of language development. In terms of age, Grunwell (1981) reports (for English) that they disappear by the age of 3:6–4:0. In terms of the children’s developmental stage, Ben-David (2001) reports (for Hebrew) that they diminish as children produce longer words; most of the processes decrease at the minimal word stage (a disyllabic word in Hebrew), and the rest fade away when trisyllabic words are produced.

2.1.2. Atypical Development

Phonological impairment is “a communication disorder characterized by difficulty to use developmentally expected speech sounds, matched for age and dialect” (DSM-IV 1994). Speech intelligibility in children with phonological impairment is low due to the presence of a relatively large number of phonological processes that fail to fade at the expected rate. These processes are often comparable to typical phonological development (e.g. the omission of a word’s unstressed