Abstract

The purpose of this study was to investigate the relationship between statistical word learning (SWL) abilities and vocabulary levels in young children at 18 months. Infants are able to discover word boundaries within a stream of speech using only statistical regularities (Saffran, 2003) and vocabulary knowledge in school-aged children (Evans, Saffran, & Robe, 2000). SWL may also be useful to investigate implicit learning abilities on children at risk for delayed language. The current study examined the ability to segment words from a statistical language and attach meaning to those newly segmented words in typical and low-vocabulary groups of toddlers. Results suggest, as in prior work, typical-developing children were able to learn statistically segmented words as object labels. In contrast, toddlers in the low-vocabulary group were unable to learn object labels, even with prior word segmentation experience and similar patterns of object labels, even with prior word segmentation experience and similar patterns of object labels.

Implicit Learning in SLI

• Children with Specific Language Impairment (SLI) have difficulty learning language despite normal nonverbal IQ.

• Recent work shows that children with SLI also have impaired implicit learning (Evans, Saffran, & Robe, 2000; Tornblin, Mainela-Arnold, Zhang, 2008).

• Statistical word learning (SWL) – a parsimonious measure of implicit learning in children – is unconscious ability to track patterns and regularities in speech. Using this information to discover word boundaries that can subsequently map to novel meanings (Graf Estes, Evans, Alibali, & Saffran, 2007).

• SWL is related to vocabulary knowledge in children with SLD. However, children with SLD require double the exposure to implicitly track statistical regularities in a speech stream (Evans, Saffran, & Robe, 2009).

• To date the best predictors of SLI are composite measures of: (1) family history of language impairment, (2) delay in language production, and (3) transfer of gestures (Ellis & That, 2008).

Late Talkers

• Typically developing children acquire language rapidly and effortlessly, but some children do not. These children, often referred to as Late Talkers, are usually identified at about 24 months of age by parent questionnaires.

• In past research, Late Talkers have been identified in many different ways, for example, by being below the 10th percentile in language abilities, having less than a 40 word productive vocabulary, very few, if any, word combinations; and are at risk for continued language impairment (Ellis & That, 2008).

• To date the best predictors of SLI are composite measures of: (1) family history of language impairment, (2) delay in language production, and (3) title of use of gestures (Ellis & That, 2008).

• Might statistical word learning ability be a better measure to identify children at risk for SLI?

Background and Purpose

The purpose of this study was to investigate the relationship between statistical word learning (SWL) abilities and vocabulary levels in young children at 18 months. Infants are able to discover word boundaries within a stream of speech using only statistical regularities (Saffran, 2003) and vocabulary knowledge in school-aged children (Evans, Saffran, & Robe, 2000). SWL may also be useful to investigate implicit learning abilities on children at risk for delayed language. The current study examined the ability to segment words from a statistical language and attach meaning to those newly segmented words in typical and low-vocabulary groups of toddlers. Results suggest, as in prior work, typical-developing children were able to learn statistically segmented words as object labels. In contrast, toddlers in the low-vocabulary group were unable to learn object labels, even with prior word segmentation experience and similar patterns of object labels, even with prior word segmentation experience and similar patterns of object labels.