Journal of Experimental Child Psychology 160 (2017) 1–20

Contents lists available at ScienceDirect

Journal of Experimental Child Psychology

journal homepage: www.elsevier.com/locate/jecp

Morphological awareness and reading comprehension: Examining mediating factors

Kyle C. Levesque [a,*], Michael J. Kieffer [b], S. Hélène Deacon [a]

[a] Department of Psychology and Neuroscience, Dalhousie University, Halifax, Nova Scotia B3H 4R2, Canada
[b] Department of Teaching and Learning, New York University, New York, NY 10003, USA

ARTICLE INFO

Article history:
Received 25 July 2016
Revised 23 February 2017
Available online 30 March 2017

Keywords:
Morphological awareness
Reading comprehension
Path analysis
Morphological decoding
Morphological analysis
Mediation

ABSTRACT

The relation between morphological awareness—defined as the awareness of and ability to manipulate the smallest units of meaning in language—and reading comprehension remains in need of specification. In this study, we evaluated four potential intervening variables through which morphological awareness may contribute indirectly to reading comprehension. We assessed word reading and vocabulary as well as children's ability to read and analyze the meaning of morphologically complex words (morphological decoding and morphological analysis, respectively). Controls of phonological awareness and nonverbal ability were included in the model. Participants were 221 English-speaking children in Grade 3. Multivariate path analyses revealed evidence of two indirect relations and one direct relation between morphological awareness and reading comprehension. In the first indirect path, morphological awareness contributed to morphological decoding, which then influenced word reading and finally reading comprehension. In a second indirect path, morphological awareness contributed to morphological analysis, which contributed to reading comprehension. Finally, in a direct path, morphological awareness contributed to reading comprehension beyond all other variables. These findings inform as to the potential mechanisms underlying the relation between morphological awareness and reading comprehension in children.

* Corresponding author.
E-mail address: kyle.levesque@dal.ca (K.C. Levesque).

http://dx.doi.org/10.1016/j.jecp.2017.02.015
0022-0965/

Introduction

Reading comprehension is a multifaceted skill deeply rooted in language (e.g., Foorman, Koon, Petscher, Mitchell, & Truckenmiller, 2015). Accordingly, a great deal of research has focused on uncovering the metalinguistic skills predictive of children's reading comprehension. One such skill is morphological awareness—the awareness of, and ability to reflect on and manipulate, the smallest meaningful units (morphemes) in spoken language (Carlisle, 1995). Substantial evidence suggests an association between morphological awareness and reading comprehension even after accounting for factors such as phonological awareness, nonverbal skills, vocabulary, and word reading (Foorman, Petscher, & Bishop, 2012; Kirby et al., 2012; Nagy, Berninger, & Abbott, 2006). Building on this knowledge base, we ask how morphological awareness contributes to reading comprehension by examining potential mediating factors in this relation for developing readers. This line of inquiry is akin to previous investigations of the relation between phonological awareness and word reading, for which substantial empirical work identified phonological decoding as the key mediating agent (e.g., Tunmer & Chapman, 1998). Here, we focus on morphological awareness and reading comprehension because the mechanisms underlying this relation remain unclear (Carlisle, 2007).

In a theoretical framework of reading comprehension, Perfetti, Landi, and Oakhill (2005) postulated that morphology plays a dual role in text comprehension. First, as part of the lexical system, morphology is said to contribute indirectly to the understanding of text by facilitating word reading. To clarify this model, it remains to be determined empirically whether morphology has a targeted influence on specific aspects of word reading or a general influence on word reading overall. Second, as part of the linguistic systems, it is argued that morphology affects reading comprehension directly by influencing comprehension processes more generally (Perfetti & Stafura, 2014). We build on this broad suggestion to speculate that the linguistic system taps into an overarching semantic network shared between spoken and written language. Within the linguistic system, morphology likely serves as a structural guide for how meaning can be constructed through morphemes, the building blocks of meaning in language. In this sense, morphology may actively facilitate the analysis of meaning derived from words with complex morphological structures, ultimately influencing the understanding of text.

Guided by this theoretical foundation, our work evaluates potential ways in which morphological awareness contributes to reading comprehension. Research to date has tended to examine the contribution of morphological awareness to reading comprehension by focusing on more general indirect effects such as general word reading skills (Kieffer & Lesaux, 2008; Perfetti et al., 2005) and vocabulary knowledge (Carlisle, 2007). There is wide speculation, however, that strong morphological awareness skills are helpful because they provide children with critical insight into the morphological structure of spoken and written language (Carlisle, 2010; Deacon & Kirby, 2004; Verhoeven & Perfetti, 2011). Accordingly, we argue that morphological awareness has a much more targeted effect on reading comprehension—one that actively facilitates children's ability to process morphologically complex words (i.e., multimorphemic words; e.g., *endangerment* = *en* + *danger* + *ment*) they encounter during reading (Gilbert, Goodwin, Compton, & Kearns, 2013; Nagy, Berninger, Abbott, Vaughan, & Vermeulen, 2003). This insight can lead to two somewhat related outcomes. Morphological awareness may contribute indirectly to reading comprehension by specifically influencing children's ability to read morphologically complex words (Carlisle, 2000; Deacon, Tong, & Francis, 2017). It also might do so by influencing children's ability to understand morphologically complex words (Deacon et al., 2017; McCutchen, Logan, & Biangardi-Orpe, 2009). These are two distinct potential mediating influences, one through reading morphologically complex words and another through understanding morphologically complex words. In the current study, we simultaneously compared the contribution of factors that might mediate the relation between morphological awareness and reading comprehension in Grade 3 students.

Word reading

As stipulated in the reading comprehension framework (Perfetti et al., 2005), morphological awareness might have beneficial effects on children's general word reading ability and subsequently on their