Acquiring English as a second language via print: The task for deaf children

Robert J. Hoffmeister [a], Catherine L. Caldwell-Harris [b],*

[a] Center for the Study of Communication and the Deaf, Boston University, USA
[b] Department of Psychology, Boston University, USA

A B S T R A C T

Only a minority of profoundly deaf children read at age-level. We contend this reflects cognitive and linguistic impediments from lack of exposure to a natural language in early childhood, as well as the inherent difficulty of learning English only through the written modality. Yet some deaf children do acquire English via print. The current paper describes a theoretical model of how children could, in principle, acquire a language via reading and writing. The model describes stages of learning which represent successive, conceptual insights necessary for second/foreign language learning via print. Our model highlights the logical difficulties present when one cannot practice a language outside of reading/writing, such as the necessity of translating to a first language, the need for explicit instruction, and difficulty that many deaf children experience in understanding figurative language. Our model explains why learning to read is often a protracted process for deaf children and why many fail to make progress after some initial success. Because language acquisition is thought to require social interaction, with meaning cued by extralinguistic context, the ability of some deaf individuals to acquire language through print represents an overlooked human achievement worthy of greater attention by cognitive scientists.

© 2014 Elsevier B.V. All rights reserved.

1. Introduction

A major component of schooling is the quest to learn to read. Deaf children take 3–4 years (or more) longer than hearing children to develop minimal reading ability, and the average deaf adult has a reading level of 4th grade (Goldin-Meadow & Mayberry, 2001; Harris & Beech, 1998; Hoffmeister, 1996). A frequent explanation cites deaf children's reduced access to English phonological structures (see reviews in Luckner, Sebald, Cooney, Young, & Muir, 2006; Marschark & Harris, 1996; Musselman, 2000; Paul, Wang, Trezek, & Luckner, 2009; Wang, Trezek, Luckner, & Paul, 2008). Poor phonological awareness is considered the largest impediment to reading for hearing children (Stanovich, 2000; Vellutino, Fletcher, Snowling, & Scanlon, 2004). Deaf children's reading problems have been conceptualized as a more extreme version of reading difficulties in hearing children (Paul et al., 2009). However, phonological awareness has only a modest relationship to reading skills in deaf children, according to a meta-analysis (Mayberry, del Giudice, & Lieberman, 2011). Because many profoundly deaf children recover little, if any, useable speech information, they face the obstacle of being asked to read English without knowing the grammar, words, or sounds of the language. On this account, when these profoundly deaf children become successful readers, it is because they learned the English language from print forms. Current theories of second language acquisition by

* Corresponding author. Address: Department of Psychology, Boston University, 64 Cummington St., Boston, MA 02215, USA. Tel.: +1 617 353 2956; fax: +1 617 353 6933.
E-mail addresses: rhoff@bu.edu (R.J. Hoffmeister), charris@bu.edu (C.L. Caldwell-Harris).

children do not endorse or even discuss the possibility of learning a language exclusively from print. This achievement needs to be more widely understood.

Many authors have endorsed the view that deaf children frequently learn English from print (Charrow & Fletcher, 1974; Goldin-Meadow & Mayberry, 2001; Johnson, Liddell, & Erting, 1989; Kuntze, 1998; Marschark & Harris, 1996; Musselman, 2000; Perfetti & Sandak, 2000; Singleton, Supalla, Litchfield, & Schley, 1998; Supalla, Wix, & McKee, 2001; Wilbur, 2000). But few have noted that learning a language from print, if it is possible beyond some exceptional cases, expands what scholars understand as a normal human achievement. How deaf children could, in principle, learn a language from only print exposure has not been examined from any perspective. The current paper addresses this omission in the research literature.

Theories of language acquisition, while diverse, agree that social interaction is necessary for children to learn both a first and a second language (e.g., Bates, 1976; Fillmore, 1991; Halliday, 1975; Lee, Mikesell, Joaquin, Mates, & Schumann, 2009; Long, 1981; Vygotsky, 1978). Children are believed to learn implicitly and procedurally (Dornyei, 2009; Tomasello, 2003). They first understand the communicative intent inherent in a situation, and then map their comprehension of linguistic meaning to words and phrases (Fillmore, 1991; Halliday, 1975; Krashen, 1985). Even older children and adults rarely learn a second or foreign language fluently from only classroom instruction (Schumann, 1997). It is thus not surprising that no research asks whether children who do not yet read in any language can acquire a language only from textual materials.

It is widely known that profoundly deaf individuals do become proficient readers and writers of English (Lane, Hoffmeister, & Bahan, 1996). Deaf adults commonly report that they learned English via reading (Dalby & Letourneau, 1991). This raises the question of how this is done, and what it tells us about reading, language and deafness.

We first briefly review theoretical positions on why learning a language from print is difficult. We describe how deaf educators have responded to this problem by trying to expose deaf learners to English before they encounter print, and why these methods (including English-based signing systems and lip-reading) have been unsuccessful in improving the average reading level of deaf children and adults. We then present our model of how English could, in principle, be learned from print, for children who come to the task with a strong foundation in a signed language. The task facing deaf children is then compared to three tasks that are well-studied in hearing children: reading in a first language, learning a second language, and reading in a second language.

1.1. Views on the difficulty of acquiring a language from print

There are two main difficulties in learning a language from print. The first is mastering a second or foreign language in a classroom setting. Hearing children rarely succeed at this at any age and especially not before age 12 (Garton, Copland, & Burns, 2011). Note that this failure

contrasts with children's success at learning in an immersion context (Marinova-Todd, Bradford Marshall, & Snow, 2000). The other challenge is to learn a second/foreign language only from written materials, with little possibility of practicing the language outside of print. There is no literature about hearing children accomplishing this, outside of savant cases (Smith & Tsimpli, 1995).

The low success of classroom foreign language instruction is consistent with theorists' view that learning a language is impossible if it does not include social interaction (or at least observing comprehensible exchanges, see Ellis, 1999). Speech act theorists argue that language isn't simply a vehicle for communicating (Austin, 1962). Utterances are social gestures which accomplish interpersonal goals such as sharing, connecting, promising, apologizing, arguing, and joking. It has long been assumed that these are acquired primarily by observing and practicing these acts. Humans learn language not to learn vocabulary or grammar, but to achieve practical goals (Lee et al., 2009; Tomasello, 2003). Achieving these goals brings social rewards; social rewards propel attention to language input and fuel the desire to communicate (Paradis, 2004; Schumann, 1997).

The key advantage of learning via interaction is that the triangulation of context, language and the need to infer speakers' goals closes the gap left by the weakness of inductive learning. Second language acquisition theorists have been especially forceful on this point. Krashen (1985) argued that second language learners can only learn if their input is "comprehensible." By this he meant that learning occurs when the meaning of utterances can be inferred from on-going social interaction and mapped to the accompanying words, phrases and grammatical constructions. While this may seem obvious, it has been customary to posit innate knowledge or learning biases as the necessary constraints on induction. Krashen's arguments were necessary in the 1980s to counter the common practice of expecting immigrant children to learn English by sitting in a classroom pitched to their native speaking peers. Although the majority of immigrant children do learn rapidly in English-only immersion programs, these children receive social interaction in English from peers and adults inside and *outside* of the classroom.

Extending these ideas, Long (1996) articulated the interaction hypothesis. Learners infer the meaning of utterances from on-going social interaction, which includes the constraints of the nonlinguistic context and speakers' goals, as mentioned above. Being engaged in a conversation allows speakers to negotiate meaning. Speakers are highly sensitive to communication failures. They actively repair communication problems and learn from paraphrases and restatements made by conversational partners. Active participation has the advantage of allowing the learner to make their own requests for clarification, but observation of peers' communication, where observers can infer speakers' intentions, is also highly valuable for learning (Ellis, 1999).

How would these theorists regard deaf children's learning of English via print? Some theorists might concede that only one domain of language is learned, the aspects of language related to conveying information via print. These