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Input to interaction to instruction: three key shifts in the history of child language research

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ABSTRACT

In the early years of the *Journal of Child Language*, there was considerable disagreement about the role of language input or adult–child interaction in children's language acquisition. The view that quantity and quality of input to language-learning children is relevant to their language development has now become widely accepted as a principle guiding advice to parents and the design of early childhood education programs, even if it is not yet uncontested in the field of language development. The focus on variation in the language input to children acquires particular educational relevance when we consider variation in access to academic language – features of language particularly valued in school and related to success in reading and writing. Just as many children benefit from language environments that are intentionally designed to ensure adequate quantity and quality of input, even more probably need explicit instruction in the features of language that characterize its use for academic purposes

In 1974, when the *Journal of Child Language*, was founded, the claim that quantity or quality of linguistic input might be relevant to the course of language acquisition was highly controversial. For some, in fact, it was an absurdity to suggest such a thing. There had accumulated by the mid 1970s a modest body of work documenting that speech addressed to young children was generally grammatically simple and lexically redundant (Remick, 1971; Snow, 1972, 1977; papers published in Snow & Ferguson, 1977), but no one had actually demonstrated that these adaptations made any difference. Furthermore, the much richer body of work documenting that speech to young children often included interactive features seemingly

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designed to support language development (repetitions, expansions, extensions, attempts at clarification, and so on; see, for example, Brown & Bellugi, 1964) could similarly be relegated to description of a register or a parenting style, rather than being accepted as a claim about processes important to language acquisition.

Researchers who were inclined to believe in the impact of features of the language environment on children's language development adopted a pragmatic perspective, much influenced by Dell Hymes' (1972) notion of communicative competence and by the 'language as action' perspectives of Austin (1962) and Searle (1969). An early example of this line of thought in the analysis of adult speech was the emphasis on the importance of semantic contingency in speech addressed to children (Cross, 1977) – the claim that adult speech was effective input because it was semantically related to the prior child utterance or to the child gesture, action, or gaze. From the child language side of things, the pragmatic approach dictated the analysis of children's earliest semi-verbal utterances as legitimate attempts at communication (e.g. Carter, 1975). That line of work led ultimately to a reconceptualization of the innate capacities for language acquisition as centered around social and pragmatic capacities rather than being syntactic structures or specifications (Ninio & Snow, 1996).

For about twenty years, then, child language researchers of the social-interactionist persuasion continued developing ever more sophisticated notions about how language input and interaction might relate to language development. Nonetheless, solid and convincing evidence that these features did relate to language outcomes remained elusive. Of course, no such evidence could be expected to emerge from the relatively small-scale small-*n* studies that characterized the child language field in its infancy. Recurrent findings from larger-scale studies of social class differences in amount of input and in child language outcomes (e.g. Snow, Arlman-Rupp, Hassing, Jobse, Joosten & Vorster, 1976) could easily be dismissed because of the impossibility of distinguishing environmental from genetic and other biological influences. The generally disappointing impacts on language outcomes obtained from interventions such as Head Start reinforced the notion that social interaction could not be causally related to speed or ease of language development.

A shift in the zeitgeist occurred with the appearance in 1995 of the book by Hart and Risley entitled *Meaningful Differences in the Everyday Experiences of Young American Children*. Hart and Risley showed strong correlations between a very simple outcome measure (child cumulative vocabulary) and a very simple feature of the input: quantity of words heard. They commented as well on the presence of interactive language features and support for language in the homes of children with larger vocabularies, and the absence in those homes of occasions when child utterances were

ignored or of punitive responses to their talk. Nonetheless, the simple message about the relationship between amount of input and amount of learning struck a chord. Hart and Risley turned the attention of many to questions about parent–child interaction in low-income families (e.g. Pan, Rowe, Singer & Snow, 2005; Rowe, Pan & Ayoub, 2005). The study had an immediate, strong impact in the field of early childhood education, with citations from researchers working in the field of language acquisition proper initially lagging behind.

Twenty years after the publication of the Hart and Risley book, the implications of its findings for our understanding of child language development are almost universally acknowledged. Hart and Risley's basic claim about quantity of input has been replicated and expanded upon through programs of research by Hoff (2003) and by the work done at the University of Chicago under the direction of Huttenlocher and Goldin-Meadow (e.g. Rowe, 2008, 2012; Rowe, Raudenbush & Goldin-Meadow, 2012), among others. Furthermore, the Hart and Risley work is cited as the direct impetus for a wide array of vocabulary interventions designed as preventatives for preschool-aged children (Leffel & Suskind, 2013; Sanders, 1999; The Thirty Million Word Project, online: <tmw.org>) and as remediations for children in the primary grades (e.g. Beck & McKeown, 2007; Biemiller & Boote, 2006; Coyne, McCoach, Loftus, Zipoli & Kapp, 2009; Silverman, 2007).

Importantly, claims about the importance of input to language learners have been expanded beyond vocabulary. Huttenlocher, Vasilyeva, Cymerman, and Levine (2002) showed relationships of syntactic complexity in input to language comprehension. In experimental studies, Nelson and colleagues (Camarata, Nelson & Camarata, 1994; Nelson, Carskaddon & Bonvillian, 1973) showed effects of brief but intensive modeling of syntactic structures on children's comprehension and use of those same structures. Pine, Lieven, Theakston, and colleagues have shown effects of frequency and predictability of occurrence of closed-class elements on order and speed of acquisition of those elements (e.g. Lieven, Pine & Baldwin, 1997; Pine & Lieven, 1997; Theakston, Lieven & Tomasello, 2003). In other words, though not yet universally accepted, the basic environmentalist/social-interactionist position on language acquisition has achieved respectability if not dominance. This position is, furthermore, the default justification for early childhood interventions such as home-visiting programs (e.g. the Nurse-Family Partnership: Olds, Holmberg, Donelan-McCall, Luckey, Knudtson & Robinson, 2014), and the basis for efforts to design high-quality early-childhood care settings (e.g. the Abecedarian Project: Campbell & Ramey, 1994; Brookline Early Education Program: Hauser-Cram, Pierson, Klein Walker & Tivnan, 1991; Project Care: Wasik, Ramey, Bryant & Sparling, 1990). So social

interactionism has achieved unquestioned ascendance in early childhood practice even if not in language acquisition theory.

MOVING TO ACADEMIC LANGUAGE

The theorizing about the impacts of input and interaction on child language development has focused primarily on vocabulary outcomes, secondarily and much less richly on listening comprehension and syntax. The default underlying theory has been one of language acquisition as a continuous and relatively undifferentiated process, in which development is characterized as learning more and more of the same sort of thing. Bringing the work on language development into connection with thinking about literacy development and academic success has raised new issues – the possibility that language development needs to be characterized as involving increasing differentiation of language uses and skills, as well as the ongoing accumulation of lexical and structural resources.

The notion that forms of language required for and used in literate contexts differ from those of conversation is hardly new. What is new is fully recognizing that differentiation as a developmental challenge – the challenge now generally referred to in the research literature as 'acquiring academic language'. Academic language encompasses the language forms used for writing academic texts, but also the forms needed to talk about disciplinary knowledge, complex ideas, hypotheticals, abstractions, theories, and the epistemological status of claims. As such, it is not a separate register or a different variety, but a set of features that can be used to greater or lesser degree, defining a continuum from highly academic to minimally academic language (Snow & Uccelli, 2008). Widely cited features of academic language include sophisticated vocabulary forms, explicit discourse markers (e.g. *nonetheless, therefore*), information packing through the use of nominalizations, embedded relative clauses, and subjectless passives, explicit references to epistemology (i.e. using terms like *ideally, putatively, hypothetically, allegedly*), the linguistic construction of a distanced relation between speaker and audience, and the speaker's assumption of an authoritative stance. When such features are present in written texts, they can constitute an enormous challenge to struggling readers, second-language readers, and to those who have not been inducted into the use of academic language in oral contexts (Schleppegrell, 2004; Snow, 2010).

Evidence about children's use of what we now call academic language has been around for a long time (e.g. Litowitz, 1977; Snow, 1990), but only recently has research attention been directed to questions like (i) how academic language develops, (ii) what features of input and interaction support its development, and (iii) how it can be reliably assessed. Evidence about the early emergence of academic language features in children's speech

is a focus of the Utrecht project called Developing Academic Language at School and at Home (DASH; e.g. Henrichs, 2010; Leseman, Scheele, Mayo & Messer, 2007). Evidence about later academic language development is emerging from a project called Catalyzing Comprehension through Discussion and Debate (CCDD; Uccelli, Meneses, Phillips Galloway & Barr, 2012; see also Kurland & Snow, 1997). Those studies also identify features in early language environments that support academic language, but for school-aged children such development typically requires explicit instruction or well-designed contexts for instruction (e.g. Snow, Lawrence & White, 2009), linking oral language skills to the teaching of reading and writing.

Advances in the assessment of academic language require a well-founded theory of the measurable components of the construct, such as the conceptualization that informed the development of the Core Academic Language Skills (CALS) assessment (Uccelli, Barr, Dobbs, Phillips Galloway, Meneses & Sanchez, 2014). Though the CALS assessment includes items designed to reflect six different components, in fact all the items load on a single factor, suggesting that the various academic language skills tapped are all highly correlated with one another.

There is still much to be learned about the home and the school contexts that promote academic language, as well as about variation in the features of academic language across languages and literate cultures. It is striking that data relevant to the early emergence of academic language were published in the *Journal of Child Language* as early as 1977, but that the topic remained relatively dormant until the widespread acceptance of environmentalist/social-interactionist accounts of acquisition motivated renewed attention to variation in language use, to the importance of the natural and the instructional environment to language development, and to the relevance of language skills to literacy, thinking, and academic outcomes.

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