

BOOK REVIEW

Language Development in Exceptional Circumstances. Edited by Dorothy Bishop and Kay Mogford. Edinburgh: Churchill Livingstone. 1988. 307 pp. £24.95

Reviewed by
SUSAN GOLDIN-MEADOW
The University of Chicago

For obvious ethical reasons, researchers cannot deliberately manipulate the conditions under which language is learned. One can, however, take advantage of variations that occur naturally in language-learning conditions in order to explore the boundary conditions under which language-learning is possible. *Language Development in Exceptional Circumstances* is an excellent review of 13 different "experiments of nature", each exploring a particular deviation from the typical language-learning circumstances, and its effect on the development of language.

Although the title "exceptional circumstances" implies that the deviations are all in the environmental conditions surrounding language-learning, in fact, the exceptional circumstances described in this book involve organic as well as environmental deviations from the norm. Three types of deviations are treated: (1) Deviations in the environment which affect the quantity and/or quality of the linguistic input the child receives (Chapters 1 through 5; e.g., children raised under conditions of extreme deprivation without any access to linguistic input; hearing children of deaf parents whose exposure to spoken language is often much less than the norm); (2) Deviations in the organism which affect the way the child processes linguistic input or produces linguistic output (Chapters 6 through 9, and 14; e.g., intermittent conductive hearing loss which affects the way the child processes speech; abnormality of the speech apparatus which prevents the child from producing speech); and (3) Deviations in the organism which affect the general endowment of the learner (Chapters 10 through 13; e.g., children with Down's syndrome or infantile autism).

In general, the book is a testament to the resilience of language-learning. However, the volume does describe a number of conditions which are not compatible with the development of language. In Chapter 1, Skuse describes children raised under conditions of extreme deprivation, none of whom developed language during their periods of deprivation (many of whom did, however, achieve linguistic proficiency after recovery and rehabilitation, findings which bear on the issue of a "critical period" for language-learning). In Chapter 12, Fay describes children with infantile autism in whom every aspect of speech, language, and communication (with the possible exception of phonology) is deviant. Thus, the book provides examples of both environmental and organic limits on the resilience of language-learning.

Moreover, in Chapter 7, Mogford describes a limit on language-learning created by a mismatch between environment and organism; in particular, deaf children whose severe

to profound hearing losses prevent them from processing the spoken language input provided by their environment. With very rare exceptions, these children do not acquire fluency in spoken language, suggesting that the visual channel cannot compensate for a lack of auditory input in the acquisition of spoken language. Indeed, the studies described by Bishop in Chapter 14 showing unimpaired (receptive) language development in children who are unable to speak make it clear that it is auditory input (rather than spoken output) that is crucial to the acquisition of spoken language.

Perhaps the clearest example of the resilience of language (as opposed to speech) comes from the fact that language is not tied to the mouth and ear but can also be processed by the hand and eye. In Chapter 9, Bellugi, van Hoek, Lillo-Martin, and O'Grady show that deaf children, when exposed to a conventional sign language such as American Sign language, acquire the language as effortlessly (and using comparable linguistic strategies) as hearing children acquiring spoken language. Thus, in an appropriate environment, deaf children are not at all handicapped with respect to language-learning, and the capacity for language-learning appears to be modality independent.

Resilience in language-learning is also evident in the face of variation in the amount and consistency of linguistic input, whether that variation is caused by environmental factors or organic factors. In Chapter 3, Schiff-Myers explores the language development of hearing children of deaf parents who are not fluent speakers, and finds that a minimal amount of exposure to hearing speakers – five to 10 hours per week – is typically sufficient to allow language acquisition to proceed normally. Moreover, hearing children do not reproduce the idiosyncracies of their deaf parents' speech, but rather regularize their language toward the norms of the spoken language they are learning. In Chapter 6, Klein and Rapin describe children whose intermittent conductive hearing losses cause their "intake" of linguistic input to vary over time in amount and pattern, and show that, despite this variability, language development for the most part proceeds normally.

We also see resilience in language-learning in the face of variation in the communicative situation in which language is learned, again whether that variation is caused by environmental factors or organic factors. In Chapter 5, Mogford explores language development in twins who most often "share" their language-learning situation with one another, making the typical twin situation triadic rather than dyadic. Mogford reports that normal language development is observed in many twin pairs, although mild delays are common. (It is worth noting that the mother-child dyad so typical of language-learning situations in middle-class America is not the norm across cultures; it would be interesting to know if twins in other cultures show delayed language development.) In Chapter 4, Genesee describes the language development of children who are presented with input from two different languages, and makes the controversial (and interesting) claim that language-learning of both languages proceeds from the start as does language-learning of a single language. (Genesee does not dwell on the fact that some children exposed to two languages end up being "semi-lingual" in both languages rather than bilingual.) In Chapter 9, Mills describes language development in blind children whose nonverbal world is obviously different from the norm, providing a more limited spectrum of contextual cues to meaning. Mills argues that this difference has little impact on the

ultimate linguistic proficiency of blind children, although it may exert an effect on the course and possibly the timing of language development.

Finally, language-learning can even survive some rather major alterations in the basic endowment of the learner. In Chapter 13, Bishop describes language development after focal brain damage and shows that language-learning can proceed normally even if the left cerebral cortex is removed, provided the brain damage necessitating this operation is sustained very early in life. Bellugi, Marks, Bihrie, and Sabo, in Chapter 11, describe the language achievements of adolescents with Williams syndrome, a rare metabolic disorder which results in severe cognitive deficits but which leaves linguistic functioning unimpaired. This phenomenon suggests that language-learning can take place without many of the cognitive skills purported to be prerequisite for the development of language. In Chapter 10, Rondal describes the linguistic abilities of children with Down's syndrome whose numerous intrinsic deficiencies complicate the process of language acquisition. Despite these drastic limitations, most children with Down's syndrome acquire some basic language reflecting the fundamental grammatical organization of their native language. (The amount of language that is acquired is in general proportion to their cognitive capabilities.)

In addition to the 13 chapters describing the different "experiments of nature", the book includes an introductory chapter, written by the editors, which provides a description of language development in unexceptional circumstances and lays out basic terminology. In Chapter 1, the editors also raise five theoretical questions on which the exceptional circumstances described in the volume could be expected to throw some light: (1) What language input is necessary for the child to learn language? (2) What is the relationship between cognition and language? (3) How independent are different components of the language function? (4) Are there critical periods for language development? (5) Can we specify necessary and sufficient conditions for language impairment? Chapter 15 returns to reconsider these five questions in light of the evidence supplied by the other chapters (including a nice analysis of the history and current state of the input question in general). This final chapter is a very useful and cogent synthesis of the findings described in the volume.

The five questions raised by the editors are the right questions to ask of this series of natural experiments, and much can be learned about each question from considering the observations from these natural experiments taken as a whole. There is, however, a disadvantage in not considering how the questions bear on one another. For example, if certain components of language are found to be independent (as is argued in Chapter 15), the input necessary for learning may be different for each of these components. Thus, one ought to consider the input question separately for each component of language. Although language-learning can occur in the face of wide variations from typical learning conditions, many of the chapters report delays in development. As Rondal makes clear in the chapter on Down's syndrome, language is not necessarily a unitary phenomenon and delays may be more likely in certain components of language than in others. If, across a variety of exceptional circumstances, the same components of language tend to be delayed while others remain intact, one might begin to argue that certain components of language are resilient in the face of either environmental or organic

deviations from the typical language-learning circumstances, while other components of language are relatively fragile.

Similarly, it is possible to relate the notion of independent components of language to the critical period. In Chapter 15, the editors bemoan the fact that data from Genie, a child who experienced extreme deprivation for the first 13 years of her life, have been used to argue both for and against a critical period for language-learning bounded at age 13. After discovery and rehabilitation, Genie was found to make progress in acquiring certain components of language but no progress in acquiring other components of language. This developmental pattern again suggests that certain components of language may be resilient – here in the face of variations in the timing of acquisition – while other components may be relatively fragile.

In general, the particular “experiments of nature” represented in the volume are well-chosen and add to our knowledge of language-learning in both exceptional and unexceptional circumstances. However, there are other cases of language development in exceptional circumstances that might have strengthened the arguments made in the book. For example, one of the clearest instances of resilience in language development comes from deaf children who are incapable of learning spoken language and who have not been exposed to conventional sign language. These children, deprived of conventional linguistic input but otherwise experiencing normal home environments, have been found to use gestures to communicate (Fant, 1972; Lenneberg, 1964; Moores, 1974; Tervoort, 1961), and their gestures have been shown to be structured as are the early communication systems of children learning conventional languages, signed or spoken (Goldin-Meadow and Mylander, 1984; Feldman, Goldin-Meadow and Gleitman, 1978).

A second omission of information that would have contributed to observations on the critical period again involves the deaf. Deaf children of hearing parents are typically not exposed to a conventional sign language at birth, and may not receive their first exposure to a conventional sign language until adolescence or later. These individuals thus provide an excellent “experiment of nature” to test the effects of learning a first language at varying times in the life course (cf., Mayberry and Fischer, 1989; Newport and Supalla, 1988).

The book is intended for two different audiences: Those who are interested in the intellectual problems posed by the study of language development in its own right, and those whose primary interest is in development under exceptional circumstances – speech therapists, pediatricians, clinical and educational psychologists, and those working in special education. To this end, the book is written in a jargon-free style and assumes little specialist knowledge. Moreover, the volume includes a glossary of linguistic and medical terminology, as well as an appendix which describes some of the more commonly used assessment procedures referred to in the text.

Although normal language development is compatible with a range of exceptional circumstances each taken alone, the authors of a number of the chapters are careful to point out that a combination of adverse circumstances in a single child may increase the likelihood of language disorder. Thus, the book underscores the complexity of the task facing practitioners of uncovering the causes, and treating the effects, of language disorder.

Language Development in Exceptional Circumstances succeeds in presenting a great deal of potentially disparate information in a coherent and usable fashion, and should be of value to both practitioners and theoreticians in the field of language development. The book provides practitioners with much specific information about the effects – and non-effects – of exceptional circumstances on language-learning, and offers theoreticians an anchoring point for theories of language development which must take into account the resilience of language-learning in the face of exceptional circumstances created by environmental or organic factors.

(Received September 21, 1989).

REFERENCES

- FANT, L.J. (1972). *Ameslan: An introduction to American Sign Language*. Silver Springs, MD: National Association of the Deaf.
- FELDMAN, H., GOLDIN-MEADOW, S., and GLEITMAN, L. (1978). Beyond Herodotus: The creation of language by linguistically deprived deaf children. In A. Lock (ed.), *Action, Symbol, and Gesture: The Emergence of Language* (pp. 351–414). New York: Academic Press.
- GOLDIN-MEADOW, S., and MYLANDER, C. (1984). Gestural communication in deaf children: The effects and non-effects of parental input on early language development. *Monographs of the Society for Research in Child Development*, **49**, 1–121.
- LENNEBERG, E.H. (1964). Capacity for language acquisition. In J.A. Fodor and J.J. Katz (eds.), *The Structure of Language: Readings in the Philosophy of Language* (pp. 579–603). Englewood Cliffs, NJ: Prentice-Hall.
- MAYBERRY, R.I., and FISCHER, S.D. (1989). Looking through phonological shape to lexical meaning: The bottleneck of nonnative sign language processing. *Memory and Cognition*, in press.
- MOORES, D.F. (1974). Nonvocal systems of verbal behavior. In R.L. Schiefelbusch and L.L. Lloyd (eds.), *Language Perspectives: Acquisition, Retardation, and Intervention* (pp. 377–418). Baltimore, MD: University Park Press.
- NEWPORT, E.L., and SUPALLA, T. (1988). A critical period effect in the acquisition of a primary language. *Science*, to appear.
- TERVOORT, B.T. (1961). Esoteric symbolism in the communication behavior of young deaf children. *American Annals of the Deaf*, **106**, 436–480.