

Language Processing in Bilingual Children

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Feeling schizophrenic about how to unite second language (L2) acquisition and bilingualism on the one hand and psycholinguistic description of first language (L1) proficiency on the other. Ellen Bialystok compiled this volume. This book is, in large, a collection of a number of seminal papers presented in the symposium "Language acquisition and implications for processing in bilingual children" hosted by the Society for Research in Children Development. Distinguished scholars from highly reputed universities such as Harvard, Oxford, Stanford, Yale, University of California, Berkeley, and York (Ontario) were invited to examine language acquisition as a process and relate it to language as used by bilingual children. A new tradition in the area of psychology and education emerged out of that meeting. The study of the cognitive ability and linguistic achievement of bilingual children no more possesses educational complexity, and L2 acquisition is not merely a substitution of L1 forms and structures. On the basis of the Chomskyan notion of government and binding (GB) and linguistic innateness, first, second, and third language are acquired by means of setting parameters in the language acquisition device (LAD). This and other GB findings are documented by means of ten empirical studies undertaken in this book.

The first chapter deals with modularity theory and bilingual processing. "If knowledge in general is compartmentalized into modules containing fundamentally different types of mental representation, how might this affect our understanding of how the bilingual mind stores and manipulates information relating to the different language systems available to it? (p. 10). In response to this question. Michael S. Smith initiated a theoretical debate in this superbly argumentative paper. Smith defined process in the

form of a distinction made between sequential bilingualism; where L1 and L2 are acquired one after another, and simultaneous bilingualism; where two or more languages are acquired at the same time. Following Fodor⁽¹⁾ and Jackendoff,⁽²⁾ modularity as related to language acquisition is viewed to stand for an acquisitional mechanism independent from other general mental growth. Contrary and independent from developmentalism, throughout modularity an individual's knowledge is presented in the form of several modules each of which constitutes an independent system. This chapter is indeed the appropriate introduction to initiate a volume dealing with bilingualism. It tabulates generativists' views of language parsing in general and bilingual processing in particular.

Ian Watson, in chapter two, reviewed a number of studies dealing with the Cinderella of bilingual studies, i.e., phonology. The relative studies reviewed here are pointed to facilitate (1) language production by means of a contrast between phonetics and phonology, (2) an answer to how monolinguals and bilinguals acquire and learn phonology, and finally (3) an index of perceptual studies. What makes the analysis of bilingual speech behavior so complex is the primary distinction which ought to be made between phonetic and phonological processing. For Watson, phonology refers to "sound-related aspects of language knowledge and behavior" (p. 26). Phonetics, on the other hand, "is concerned with the processing by which a linguistic, phonological representation is turned into an acoustic signal by means of physical gestures" (p. 26). Contrary to earlier claims, recent investigations suggest that there is no clear evidence for the infant's first words to be "stored, produced, and recognized as anything other than unanalyzed wholes, associated with specific situations" (p. 32)⁽³⁾ There seem to be sweeping generalizations in recent studies that simultaneous bilinguals can attain the facility to function in two languages without being aware of the fact that they are using—until the age of two years—two different phonological systems. By the age of about two, the bilingual child starts to differentiate between the two phonological systems that he is using. It is extremely difficult to study when and at what degree the child is using one phonological system and not the other, because (1) most evidence concerning bilingual children from the age of two to five years comes from parents' observations which differ a great deal from scientifically controlled examination, and (2) as does the monolingual child, the bilingual child simplifies the phonological systems that he is trying to acquire and hence use. The issue of dominance is not possible to be overlooked in bilingual (phonological) situations. Greater exposure to one language influences the bilingual child's phonological processing ability. Consecutive bilingual cases, on the

(1) J. Fodor, *Modularity of Mind* (Cambridge, Mass: MIT Press, 1983).

(2) R. Jackendoff, *Consciousness and the Computational Mind* (New York: Academic Press, 1987).

(3) C. Ferguson and C. Farwell, "Words and Sounds in Early Language Acquisition," *Language*, 51 (1975), 419-39; P. Menyuk and L. Menn, "Early Strategies for the Perception and Production of Words and Sounds," in Fletcher and Garman, eds., *Language Acquisition* (Cambridge: Cambridge University Press, 1979).

other hand, are more distinct and hence influenced by age. The mother tongue phonological system is acquired with less conscious effort until the foreign system is introduced. The learner's age and the distance between the two phonological systems are the two main factors affecting monolinguals learning another language. Simultaneous and consecutive bilinguals alike use the same production strategies that the monolinguals use but with different frequency to suit either situation. Watson concluded that "the number of unanswered questions in the area of bilingual phonology is still enormously high" (p. 45).

In chapter three, L.W. Filmore proposed a model of L2 learning in social context. This model deals with cognitive and social factors that influence the learning of a new language as they interact with linguistic and situational factors. The social factors under consideration are sociability, communicative need, risk taking, and self-confidence. The cognitive factors are inductive reasoning, verbal memory, and pattern recognition. The linguistic and contextual factors are those which are related to the new immigrants to the United States of America learning English and using their home language in their immediate social contacts (home and local community). The learning model at which social, cognitive and linguistic processes interact consists of (1) the L2 learner of English, (2) native speakers of English and (3) English-native social environment (in the US). Each of these components has certain variations affecting L2 learning. Among these variations are; type of exposure to target language; formal/informal language usage; partial/full learner's involvement in communicative conducts; learner's age, personal characteristics, ability and inclination to interact with native speakers, communicative style, need, attitude, and motivation to learn the target language. Filmore's model contains less theoretical jargon and hence a simple and straightforward account of the L2 learning processes and linguistic, cognitive, and contextual variations. It is indeed a working model of learning English as a second language and particularly ready to suit non-natives of English who immigrate to America and hence reside there.

The interdependency of L1 and L2 proficiency in bilingual children is addressed in chapter four. Again with special reference to immigrant students—as most of the studies reported in this volume did—J. Cummins, in this chapter, investigated the relationship between L1 and L2 proficiency according to the linguistic background of the student involved. Three categories were established; (1) Finnish students in Sweden, (2) Hispanic students in the United States, and (3) Asian students in the United States and Canada. This study focuses on the extent to which different aspects (attribute-based and input-based) of L1 and L2 proficiency are related in the L2 acquisition process. Attribute-based (learner's involvement) and input-based (contextuality) aspects of L2 proficiency differ in the sense that the former is more stable than the latter. Contextualized and decontextualized language skills are highlighted in order to show the overriding role of the input-based aspects of L2 learning. "The importance of quantity of input is clearly indicated by the consistently strong relationships observed between length of residence and L2 acquisition." Lesser "strong crosslingual relationships are

observed for attribute-based aspects of L1 and L2 proficiency as a result of the fact that underlying attributes of the individual manifest themselves in the individual's performance in both languages" (p. 84). The study concluded with a general remark that the attribute-based and input-based aspects of language proficiency are not totally independent. As observed, a L2 learner who is highly motivated is most likely to seek out greater input than those who have less motivation.

In chapter five, Snow et al. looked at 'giving formal definition' in the context of L2 learning activities at school. 'Tell me what X is?' is the question (part of a larger experiment) that 150 elementary school children were asked, out of which 137 second through fifth graders answered. The data is collected from the United Nations International School in Manhattan which serves the international community of the New York City area. English is the language of instruction and French is taught as a second language. The language setting is to give a definition, which is a frequent practice as far as teaching of vocabulary is concerned. In spite of the fact that younger children have considerable difficulties in not only giving but also in understanding definitions, it is interesting to note that young children include in their definitions incidental, idiosyncratic, and personal information. Hence, "giving formal definitions constitutes a metalinguistic task in which both analysis of knowledge and control of processing are critical to success" (pp. 90-91). With reference to the development of definitions, the study suggested that children usually go through the following stages in order to give formal definitions: (1) analyze the task situation, (2) decide that a formal definition is required, (3) recall the linguistic form suitable for this genre, (4) reflect on the meaning of a target word, (5) analyze their past knowledge about the word in order to determine what is central to its meaning, and (6) organize the emerged information using the appropriate form for the definitional genre.⁽⁴⁾ "At every stage of this process analysis is crucial—analysis of the situation first, of the genre-specific demands second, and then of one's own lexical knowledge. The centrality of this process of analyzing knowledge—is the reason we feel definitions reflect a good deal of metalinguistic as well as linguistic ability" (p. 104).

Language—either L1 or L2—is not acquired and mastered independently of other forms of knowledge and abilities. This is what E. Bialystok, in chapter six (metalinguistic dimensions of bilingual language proficiency), concluded. The first part of this study is initiated with an operational definition of metalinguistic ability and hence distinguished from linguistic ability. The second—though the central—part deals with the oral, literate, and metalinguistic use of language. "If monolingual and bilingual children develop these processing skills in different ways or at different rates, then there will be differences in all three domains of language use and not simply in metalinguistic tasks" (p. 114). The last part of the study explains with further detail the different ways

(4) These stages are to be found with greater detail in the conclusion of the study on page 104.

through which bilingual children learn and process language. These processes are acquired differently by monolingual children.

Pedagogy of translation and bilingualism are researched in chapter seven. M. Malakoff and K. Hakuta claim that bilingual (balanced bilinguals) children naturally alternate (translate) between the two languages. The bilingual children experience the world around them through two languages and their linguistic experience is spread over two languages; therefore, their performance cannot be compared to monolingual children. Hence, translation—as a bilingual process—was proposed as a category through which bilingual performance can only be measured. With no distinction made between translation and interpretation, and after a long review of the literature on bilingualism and “natural translation,” the authors cited two empirical investigations of translation ability among Puerto Rican children in the United States of America. The subjects of the first study were sixteen (8 girls and 8 boys) and fifty-two (27 girls and 25 boys) of the second. Their findings provide explicit support for good written and oral translation produced by bilingual children. The translations of the participants “reflect their understanding of the communicative importance of translation” (p. 161). However, translation errors are largely reported in the area of sentence structure rather than its meaning. Although elementary school children (bilinguals) are said to be able to translate, the study concluded that translation efficiency and quality are subject to a number of factors among which are target language proficiency and translation processes.

The eighth chapter explains how the metalinguistic skills of bilinguals are related to advantages in cognitive abilities not directly related to language. R. Diaz and C. Klingler proposed a working model characterizing the relationship between cognitive development and bilingualism. This model specifies the role of linguistic awareness in the development of non-linguistic cognitive skills. The model-building efforts are (1) reviewing relative findings of previous studies, and (2) discussion of Vygotsky’s theory of language and thought.⁽⁵⁾ The findings of previous studies which are believed to be related to the proposed model are listed (p. 183) as:

- Bilingual children show consistent advantages in tasks of both verbal and non-verbal abilities.
- Bilingual children show advanced metalinguistic abilities, especially language processing.
- Cognitive and metalinguistic advantages appear in bilingual situations.
- The cognitive effects of bilingualism appear relatively early in the process of becoming bilingual.

(5) L. Vygotsky, *Thought and Language* (Cambridge, Mass: MIT Press, 1962); *Idem.*, *Mind in Society: The Development of Higher Psychological Processes* (Cambridge, Mass: Harvard University Press, 1978).

- Bilingual children show advantages in the use of language for verbal mediation.

Vygotsky's theory of language and thought is explained further in the second part of the model. Neither conceptual nor empirical observations were provided to support the model. Instead, the writers outlined (pp. 189-190) the following suggestions for future research:

1. The characterization of bilingualism as an additive situation needs to be specified.
2. How do the specific features of bilingualism foster an increasing awareness of language?
3. Further research is needed on the awareness of language functions.
4. Further research is needed to specify the relation between language awareness and control.
5. Further research is needed to specify the functional relations between private speech and cognitive activity.

On the same explanatory line, chapter nine uses cognitive development theory to explain the relevance of bilingualism to cognitive function. Throughout this chapter, J. Johnson reviewed the relevant research data and mechanisms starting with research on bilingualism and cognition, Vygotskian (and others) viewpoint from a constructivist perspective, and finally the dialectrical constructivist perspective. "The major conclusion is that the impact of bilingualism is on the construction of logological and executive structures, and not on purely linguistic structures" (p. 216).

Finally, language and cognition are put in their pedagogical perspective. In this final chapter, the editor Bialystok and J. Cummins sum up the previous chapters. Doing so, they evaluate various conclusions reported in the previous analyses. These findings are viewed with special reference to cognitive development and linguistic proficiency in bilingual children.

There are two main reasons underlining Bialystok's challenge of compiling this book. The first is to bring to the foreground long lasting misconceptions about bilingualism, and the second is to highlight the importance of viewing language acquisition as a process rather than a product. Traditionally, bilingualism was viewed through some kind of contrast between the native language (L1) and the target language (L2). The psycholinguistic explanation for this view is that the L2 learner acquires his second language by means of starting all over again to repeat the same processes of acquiring L1. This view was sustained, until very recently, due to the fact that the analyses of language were—and to some extent still are—contextualised either in the form of learning or usage. This contextual prospective led some sociolinguists to believe that a second language is merely acquired for social incentives such as integration into the target community. Two remaining problems encourage still further research: age and

effect. What is the optimal age at which a second language ought to be introduced? What are the implications of learning L2 on the cognitive, linguistic, social, and educational abilities of the learner? It is mostly the later query which the present volume attempted to answer. It is worth noting that bilingualism is contextualised, throughout various studies reported in this book, as related to children of immigrant families to the United States of America who are speakers of languages other than English. Their inclination, motivation and need to acquire English are unmistakably obvious, though different from other L2 learners elsewhere.