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SCHOOLING AND LANGUAGE MINORITY STUDENTS: A THEORETICAL FRAMEWORK

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PREFACE

The growing interest in the problems of language minority students in the United States has been accompanied by the publication of an enormous number of books and articles. Often, however, advice regarding approaches, methods, strategies, and techniques for effectively educating language minority students is offered without any concern or explanation of empirical evidence. With the possible exception of legal concerns, the Office of Bilingual Bicultural Education in the California State Department of Education receives more inquiries regarding research evidence on the effectiveness of bilingual education than on any other issue. Educators want to know which types of programs actually work with non-English language background students.

The Office of Bilingual Bicultural Education has identified three major objectives for all instructional programs serving language minority students. Regardless of the approach taken, at the end of the treatment period, language minority students should exhibit: (1) high levels of English language proficiency, (2) appropriate levels of cognitive/academic development, and (3) adequate psychosocial and cultural adjustment. The articles included in this collection of papers explain the importance of these goals and describe the likelihood of various types of instructional approaches to achieve such outcomes. Instead of providing the reader with a series of unconnected suggestions and recommendations, the authors collectively advance a research-based theoretical framework for the design and implementation of instructional programs for language minority students.

This publication is a progress report, not a collection of proven answers. The theoretical framework implied in this volume is, however, based on the best information that science can provide at this time. The research herein reported does not lead to perfect programs with perfect outcomes, nor does it answer all the questions regarding language development, language acquisition, and cognitive/academic development in bilingual contexts. But, taken collectively, these articles form the beginning of a research-based theoretical framework for planning and improving bilingual education programs. We at the California State Department of Education view this as substantive progress. We

are encouraged by the potential practical applications of the research presented in this collection and shall continue with the refinement of this work. At the same time, we not only invite other researchers, teacher trainers, and school district personnel to put into practice the ideas and implications presented here but also to improve and expand their programs to meet all of the schooling needs of language minority students.

Guillermo Lopez, Chief
Office of Bilingual Bicultural Education

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Sincere appreciation is first expressed to the authors of the five papers appearing in this collection: James Cummins, Stephen Krashen, Dorothy Legarreta-Marcada, Tracy Terrell, and Eleanor Thonis. The contributors have not only astutely synthesized their own research and the research of others but have also skillfully presented the information in a manner especially suitable to educators.

Special thanks are also due to the Project Team members in the Office of Bilingual Bicultural Education: Maria Ortiz, Dennis Parker, and Fred Tempes. These individuals were responsible for the design of the initial outline questions, review of the interim and final drafts, consultation with the authors, and preparation of the articles for the publisher. In turn, the work of the Project Team was ably promoted and supervised by several administrators at the California State Department of Education, including Ramiro Reyes, Guillermo Lopez, and Tomas Lopez. Charles Leyba, Director, and his staff at the Evaluation, Dissemination and Assessment Center, California State University, Los Angeles are to be commended for their professional preparation of this document. The Office of Bilingual Education and Minority Language Affairs of the United States Education Department provided the funds for this project.

Many more individuals and agencies, too many to list here, provided valuable assistance in the development of this collection; final responsibility for this volume, nevertheless, rests with the Office of Bilingual Bicultural Education, California State Department of Education.

David P. Dolson
Project Team Leader
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BIOGRAPHICAL SKETCHES

JAMES CUMMINS is a Visiting Professor in the Modern Language Centre of the Ontario Institute for Studies on Education. He received his PhD from the University of Alberta in 1974. His research interests include minority group achievement, bilingualism, and reading disability. He is the recipient (with J. P. Das) of the International Reading Association 1979 Albert J. Harris Award for the best paper on detection and remediation of reading disability.

STEPHEN KRASHEN is Professor of Linguistics at the University of Southern California. He has published extensively on second language acquisition theory, second language teaching, and neurolinguistics. He is the author of **Second Language Acquisition and Second Language Learning** (Pergamon Press, 1981), co-author of **The Human Brain** (Prentice-Hall, 1977); and co-editor of **Research in Second Language Acquisition** (Newbury House, 1980).

DOROTHY LEGARRETA-MARCAIDA is Adjunct Professor of Basque Studies at the University of Nevada, Reno. Dr. Legarreta has published several articles on second language acquisition and primary language maintenance. Her earlier research was on Black dialect speakers. Her present book-in-progress is a study of ethnic identity and language maintenance among nearly 20,000 Basque children evacuated during the Spanish Civil War and sent to France, England, Belgium, the U.S.S.R., and Mexico.

TRACY DAVID TERRELL is the Chair of the Program in Linguistics and a member of the Department of Spanish and Portuguese at the University of California, Irvine. He has written many articles on Spanish phonology, especially on the phonology of Caribbean Spanish. His theoretical interest is sociolinguistics and, in particular, language change. His recent area of specialization is second language acquisition, especially language teaching. He is perhaps best known as the initiator of a "new" communicative approach to language instruction, "The

Natural Approach." He has published a text on applied linguistics with Maruxa Saigues de Cargill called **Linguística aplicada** (J. Wiley and Sons) and another will appear shortly on Spanish phonetics with R. Barrutia, **Fonética y fonología españolas** (J. Wiley and Sons). He will also publish a book co-authored with S. Krashen entitled **The Natural Approach: Language Acquisition In the Classroom** (Pergámon Press).

ELEANOR WALL THONIS is the district psychologist for Wheatland Elementary School District; a part-time instructor, University of California, Berkeley; and the consultant for bilingual education in the Marysville Unified School District. She has served as the director of the area Reading Center and is the author of several publications on reading for language minority students.

INTRODUCTION

There are presently more than 375,000 students of limited English proficiency in California public schools. There are an additional 433,000 students of fluent English proficiency who have a home language other than English. This means that California's language minority student population in kindergarten through grade twelve approximates 810,000.

As a group, language minority students tend to do poorly in regular school programs. They do not acquire the language, academic, and sociocultural skills necessary to meet the challenges of vocational and higher education pursuits. Many language minority students achieve only low levels of primary language proficiency while acquiring less than native-like ability in English.

Making decisions about instructional offerings for language minority students has proven to be a complex and demanding task for school personnel and parents alike. Part of the difficulty can be attributed to the absence of a theoretical framework upon which programs for language minority students can be based. Without a framework, decision makers are often unable to focus consistently upon the psychosocial and educational factors that influence the school achievement of language minority students. While political and economic factors are also important, basing educational programs solely on such grounds tends to affect negatively the quality of the educational experience of language minority students. Only by clearly understanding what educational attainments are possible for language minority students can school personnel and parents judge the appropriateness of the educational practices currently utilized by local schools. Although political and economic compromises may be necessary, they are best made when decision makers understand as many of the pertinent dynamics as possible. This publication offers information related specifically to the educational consequences of program decisions on language minority students.

In the past, most knowledge about programs for language minority students was based entirely on authority (laws and experts), the personal experiences of educators, and the "common sense" reasoning of program designers and planners. Such information may be important but is in itself insufficient for making

critical educational decisions. Therefore, the Office of Bilingual Bicultural Education of the California State Department of Education has decided to turn to scientifically controlled studies to establish the validity of knowledge about instructional programs for language minority students. Empirical knowledge is certain to improve the ability of educators to predict individual student and program outcomes for specific types of students, given certain types of instructional treatments, and under different types of background conditions. Thus, the articles contained in this collection represent an initial step in the development of a research-based theoretical framework for the schooling of language minority students.

This collection of papers is divided into two major parts. The first section, consisting of papers by James Cummins and Stephen Krashen, addresses the theoretical underpinnings of primary language development, second language acquisition, and the relationship of both to normal school achievement. The second section contains a series of three papers, each expanding upon the theoretical works in the first section and providing the reader with numerous instructional methods and techniques, all consistent with each other and with the various hypotheses posited by Cummins and Krashen.

No pedagogical issue relating to the instruction of language minority students has been more vigorously debated than the role of minority languages in bilingual education programs. In his work, Cummins clarifies the role of the primary language by: (1) describing the nature of language proficiency and its connection to academic and cognitive development, (2) identifying different levels of bilingualism experienced by language minority students and predicting the corresponding effects of each level on academic achievement, and (3) suggesting a relationship between primary language development and eventual attainment in the second language through the notion of a common underlying dimension of language proficiency. Clearly, Cummins has developed several important hypotheses and constructs that help explain and reconcile the seemingly contradictory findings of many other researchers.

While Cummins' article focuses on primary language development and academic achievement, Krashen dedicates attention to the acquisition of a second language, specifically English. The author distinguishes between language acquisition and

language learning environments. The former, it is suggested, leads to fluency, while the latter assists in the development of what Krashen calls the "Monitor." Krashen also suggests that the key to second language acquisition is exposure to "comprehensible input" in substantial amounts and under optimal conditions. In describing the conditions necessary for second language acquisition, Krashen analyzes the potential of various second language (grammar and communicative-based English-as-a-Second-Language) and bilingual education (immersion, transitional, and ideal) programs to meet the language and academic needs of minority students.

Based on the assumption that high levels of primary language proficiency promote adequate school achievement, Dorothy Legarreta-Marcada explores the effective use of primary language in bilingual classrooms. The author addresses five key questions related to the design, management, and implementation of bilingual classes:

1. To what extent should the child's primary language be used overall in grades K-6?
2. In what manner should primary language instruction be delivered:
 - a. Concurrent translation?
 - b. Alternate immersion (direct method) usually through language dominant groupings?
3. What variety of the primary language should be used in the classroom?
4. How can we ensure the prestige of the primary language vis à vis the dominant language, English?
5. How can primary language use be monitored: a formative evaluation process?

The responses to these questions are based on the recent findings of empirical studies and the published material of experienced professionals.

Complementing Krashen's theoretical hypotheses, Tracy D. Terrell presents an acquisition model called the "Natural Approach." This model is one means of applying Krashen's theoretical constructs. Terrell not only describes the model in relationship to Krashen's work and the work of others but also addresses: (1) the principles of the Natural Approach, (2) natural language acquisition situations, (3) appropriate teacher

behaviors, (4) sample teaching techniques and strategies, (5) the use of continua in the Natural Approach, and (6) student evaluation. Terrell's article is enhanced by the inclusion of many actual classroom examples related to suggested techniques and strategies.

The last paper, by Eleanor Thonis, deals with reading instruction in bilingual contexts. She expands upon Cummins' notion of a Common Underlying Proficiency (CUP) in the cognitive/academic language skills area as it relates to literacy acquisition among bilingual students. The potential for primary language reading skill transfer to English is discussed in detail. Additionally, the author suggests appropriate methods and techniques designed to promote primary language literacy in and out of the classroom. Thonis concludes her article with a description of the positive outcomes associated with biliteracy.

Finally, the compendium concludes with an Appendix and a Glossary. The appendix contains a sample copy of the 1981-82 version of the Bilingual Education Program Quality Review Instrument, Kindergarten Through Grade Six. The use of this instrument is one way the Office of Bilingual Bicultural Education promotes the principles and standards of implementation suggested by the theoretical framework implied in this compendium. Other promotional strategies include the development of Asian and minority group handbooks and periodic presentations at regional technical assistance workshops for local school district personnel as well as coordination meetings with resource agencies and county schools offices. The glossary of terms has been included to assist the reader by promoting consistency in the use of the key terms across articles. It is suggested that the reader become familiar with the entries in the glossary before attempting a thorough reading of any of the papers.

Most educators, government officials, parents, and community members would agree that the goal of educational programs designed for language minority students is to allow such students to develop the highest degree possible of language, academic, and social skills necessary to participate fully in all aspects of life. More specifically, as a result of an instructional treatment, language minority students should attain: (1) high levels of English language proficiency, (2) normal cognitive and academic achievement, (3) adequate psychosocial and cultural adjustment, and (4) sufficient levels of primary language develop-

ment to promote normal school progress. Based on the empirical evidence presented in the five articles contained in this collection, properly designed and adequately implemented bilingual education programs are one means to achieve such goals.

As a result of the controversy regarding the legislation of state and federal requirements, some educators today erroneously believe that many parents and community members view bilingual education with disfavor. This is not necessarily the case. In a recent poll conducted for *Newsweek* by the Gallup Organization (March, 1981), 64 percent of the American public approved of classes conducted in a foreign language as well as in English for children who do not speak English. Another 14 percent did not know enough about the value of these classes to make a judgment. Contrary to the statements of a few political opportunists, uninformed newspaper columnists, and some special interest group representatives, the public is generally supportive of primary language instruction for language minority students, even though there may not be an awareness of the strong scientific case for such programs.

The task of educating language minority students is not simple. Nevertheless, creative and committed educators in cooperation with concerned parents and community members have designed and implemented educational programs that result in significantly improved school performance on the part of such students. In other words, under certain conditions, language-related problems are no longer as likely to interfere with the academic and vocational aspirations of language minority students and their families. To accomplish this, educators must rely upon empirical evidence rather than "folk remedies" as a guide to professional decisions for selecting and implementing instructional programs for language minority children. This publication is meant to be an important contribution toward this end.

David P. Dolson
Project Team Leader
Office of Bilingual Bicultural Education

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Part One

Theoretical Foundations

The Role of Primary Language Development in Promoting Educational Success for Language Minority Students*

James Cummins

IN ORDER TO ASSESS the role of language minority students' primary language (L1) development in the acquisition of English (L2) academic skills, it is necessary to consider two questions: (1) What is meant by "language proficiency"? and (2) What are the cross-lingual dimensions of language proficiency, i.e., how does the development of proficiency in L1 relate to the development of L2 proficiency? Confusion concerning the rationale for bilingual education, assessment of bilingual proficiency, and entry-exit criteria for bilingual programs stems from inadequate conceptualization of the nature of language proficiency and its cross-lingual dimensions.

To account for the research data on bilingual education, it is necessary to distinguish those aspects of language proficiency involved in the development of literacy skills from other aspects of language proficiency, and to note that these literacy-related aspects are interdependent across languages, i.e., manifestations of a common underlying proficiency.

This paper is organized into three sections. First, the nature of language proficiency and its relationship to academic and cognitive development is considered. In the second section, the origins of current misconceptions about bilingualism are examined, and a theoretical position regarding the nature of bilingual proficiency is formulated in light of the research data. The third section applies these theoretical positions regarding the nature of language proficiency and its cross-lingual dimensions to the current debate over the rationale for bilingual education, entry and exit criteria, and assessment of bilingual proficiency.

*Many people have contributed to the present paper through comments on previous versions of the theoretical framework which it elaborates. I would like to thank Michael Canale, Steve Chezarek, Lily Wong Fillmore, Fred Genesee, Steve Krashen, John Oller Jr., Muriel Saville-Troike, Bernard Spolsky, Merrill Swain, Rudolph Troike, and Benji Wald for their constructive criticisms. The suggestions of the editorial team for the present volume have also been extremely useful and for this I would like to thank David Dolson, Maria Ortiz, Dennis Parker, and Fred Tempes of the Office of Bilingual-Bicultural Education, California State Department of Education.

The Nature of Language Proficiency

How Misconceptions About English Proficiency Create Academic Deficits in Language Minority Students

The rationale for bilingual education in the United States (United States Commission on Civil Rights, 1975), as it is understood by most policy makers and practitioners, can be stated as follows:

Lack of English proficiency is the major reason for language minority students' academic failure. Bilingual education is intended to ensure that students do not fall behind in subject matter content while they are learning English, as they would likely do in an all-English program. However, when students have become proficient in English, then they can be exited to an all-English program, since limited English proficiency will no longer impede their academic progress.

Despite its intuitive appeal, there are serious problems with this rationale. First, it ignores the sociocultural determinants of minority students' school failure which, it will be argued, are more fundamental than linguistic factors. Second, an inadequate understanding of what is meant by "English proficiency" is likely to result in the creation of academic deficits in language minority students.

Some concrete examples will help illustrate how this process operates. These examples are taken from a Canadian study in which the teacher referral forms and psychological assessments of over 400 language minority students were analyzed (Cummins, 1980c). Throughout the teachers' referral forms and psychologists' assessment reports are references to the fact that children's English communicative skills appear considerably better developed than their academic language skills. The following examples illustrate this point:

PS (094). *Referred for reading and arithmetic difficulties in second grade, teacher commented that "since PS attended grade one in Italy, I think his main problem is language, although he understands and speaks English quite well."*

GG (184). *Although he had been in Canada for less than a year, in November of the grade one year, the teacher commented that "he speaks Italian fluently and English as well." However, she also referred him for psychological assessment because "he is having a great deal of difficulty with the grade one program" and she wondered if he had "specific learning disabilities or if he is just a very long way behind children in his age group."*

DM (105). *Arrived from Portugal at age 10 and was placed in a second grade class; three years later in fifth grade, her*

teacher commented that "her oral answering and comprehension is so much better than her written work that we feel a severe learning problem is involved, not just her non-English background."

These examples illustrate the influence of the environment in developing English communicative skills. In many instances in this study immigrant students were considered to have sufficient English proficiency to take a verbal IQ test within about one year of arrival in Canada. Similarly, in the United States, language minority students are often considered to have developed sufficient English proficiency to cope with the demands of an all-English classroom after a relatively short amount of time in a bilingual program (in some cases, as little as six months).

There is little doubt that many language minority students can develop a relatively high degree of English communicative skills within about two years of exposure to English-speaking peers, television, and schooling. However, in extrapolating from the considerable English proficiency that language minority students display in face-to-face communication to their overall proficiency in English, we risk creating academic deficits in these students.

Consider the following example:

PR (289). PR was referred in first grade by the school principal who noted that "PR is experiencing considerable difficulty with grade one work. An intellectual assessment would help her teacher to set realistic learning expectations for her and might provide some clues as to remedial assistance that might be offered."

No mention was made of the child's ESL background; this only emerged when the child was referred by the second grade teacher in the following year. Thus, the psychologist does not consider this as a possible factor in accounting for the discrepancy between a verbal IQ of 64 and a performance IQ of 108. The assessment report read as follows:

Although overall ability level appears to be within the low average range, note the significant difference between verbal and nonverbal scores....It would appear that PR's development has not progressed at a normal rate and consequently she is, and will continue to experience much difficulty in school. Teacher's expectations at this time should be set accordingly.

What is interesting in this example is that the child's English communicative skills are presumably sufficiently well developed that the psychologist (and possibly the teacher) is not alerted to the child's ESL background. This leads the psychologist to infer from her low verbal IQ

score that "her development has not progressed at a normal rate" and to advise the teacher to set low academic expectations for the child since she "will continue to experience much difficulty in school." There is ample evidence from many contexts (Mercer, 1973) of how the attribution of deficient cognitive skills to language minority students can become self-fulfilling.

In many of the referral forms and psychological assessments analyzed in this study, the following line of reasoning was invoked:

Because language minority students are fluent in English, their poor academic performance and/or test scores cannot be attributed to lack of proficiency in English. Therefore, these students must either have deficient cognitive abilities or be poorly motivated ("lazy").

The trend to exit students to all-English programs as quickly as possible in many United States bilingual programs inevitably gives rise to a similar line of reasoning. It is commonly observed that students classified as "English proficient" after a relatively short stay in a bilingual program and then exited to an all-English program often fall progressively further behind grade norms in the development of English academic skills. Because these students appear to be fluent in English, their poor academic performance can no longer be explained by their English language deficiency. Policymakers and educators are also reluctant to blame the school for minority students' poor performance because the school has accommodated the students by providing a bilingual program. Once again, the academic deficiency will be attributed to factors within the child.¹

It is frequently assumed that language minority students have become "English proficient" when they have acquired relatively fluent and peer-appropriate face-to-face communicative skills. The examples cited above, as well as the research evidence reviewed in the remainder of this paper, strongly suggest that this misconception operates to impede the academic progress of language minority students. To understand the nature of this misconception, it is necessary to consider the question of what is meant by "English proficiency."

¹ This process is, in many respects, the opposite of the attribution of deficient cognitive or linguistic ability on the basis of surface structure dialectal differences (Shuy, 1977). In the present situation, the presence of adequate surface structure leads teachers to eliminate "lack of English proficiency" as an explanatory variable with the result that low academic performance is attributed to deficient cognitive abilities in language minority students.

What Is Meant By "English Proficiency"?

There is still little consensus among researchers as to the nature of "language proficiency" or "communicative competence."² For example, a model proposed by Hernandez-Chavez *et al.* (1978) comprised 64 separate proficiencies, each of which, hypothetically, is independently measurable. At the other extreme is Oller's (1978; 1979) claim that "...there exists a global language proficiency factor which accounts for the bulk of the reliable variance in a wide variety of language proficiency measures" (1978, p. 413). This factor is strongly related to cognitive ability and academic achievement measures and is about equally well measured by certain types of listening, speaking, reading, and writing tasks.³

The communicative competence framework proposed by Canale (1981), on the basis of the earlier Canale and Swain (1980) theory, adopts an intermediate position in distinguishing four components. These are:

1. *Grammatical competence*: Mastery of the language code (e.g., lexical items and rules of word formation, sentence formation, literal meaning, pronunciation, and spelling).

2. *Sociolinguistic competence*: Mastery of appropriate language use in different sociolinguistic contexts, with emphasis on appropriateness of meanings and forms.

3. *Discourse competence*: Mastery of how to combine meanings and forms to achieve a unified text in different modes (e.g., telephone inquiry, argumentative essay, and recipe) by using (a) cohesion devices to relate utterance forms (e.g., pronouns and transition words), and (b) coherence rules to organize meanings (e.g., repetition progression, consistency, and relevance of ideas).

4. *Strategic competence*: Mastery of verbal and non-verbal strategies (a) to compensate for breakdowns in communication due to insufficient competence or performance limitations (e.g., strategies such as use of dictionaries, paraphrase, and gestures), and (b) to enhance communication effectiveness.

² Although language can be used for purposes not overtly communicative, e.g., problem-solving (Canale and Swain, 1980), these "analytic" (Bruner, 1975) language skills develop within a matrix of human interaction; thus, for purposes of this paper, the terms "language proficiency" and "communicative proficiency" are being used synonymously.

³ It should be noted that Oller (1979) leaves open the possibility that there may be smaller specific components of language proficiency that are not encompassed by the global proficiency dimension.

There are two major problems in applying this or any other theoretical framework for communicative competence to minority students' acquisition of English proficiency. First, these theories tend to be static since the developmental aspects of communicative competence in L1 and L2 are left vague; second, in general, little consideration has been given to the role of specific acquisition contexts in determining the interrelationships and development of different aspects of communicative competence (however, see Canale, 1981). In particular, the nature of the communicative demands of schooling (e.g., processing language outside of one-to-one, face-to-face situations) has not been considered. The relevance of these problems can be seen by examining the development of English proficiency among native English-speaking children.

The Development of English Proficiency in School Contexts. The development of language proficiency can be considered in two very different ways. First is the acquisition of what Bruner (1975) has termed the "species minimum" involving the phonological, syntactic, and semantic skills that most native speakers have acquired by age six (there is little difference between the phonological competence of a six-year-old and a fourteen-year-old). Similarly, mastery of basic syntax approaches maturity by age six, although the development of more sophisticated rules and flexibility in grammatical control will continue into early adolescence (Chomsky, 1972). Also, semantic categories such as agent, instrument, and recipient of action are present at a very early age.

However, in contrast to the acquisition of this "species minimum" competence, other aspects of language proficiency continue to develop throughout the school years and beyond. Obvious examples are literacy-related language skills such as reading comprehension, writing ability, and vocabulary/concept knowledge. Within each of the four components of communicative competence distinguished by Canale (1981), native speakers achieve mastery levels in some subskills prior to others. For example, within grammatical competence virtually all native speakers master pronunciation before spelling. Similarly, some aspects of sociolinguistic, discourse, and strategic competence will be mastered at an early age and others much later, if at all.

However, within a second language context very different relationships may exist among the various subskills, depending upon the specific acquisition context, e.g.: formal L2 classroom vs. real life exposure, or pre-school immigrant children vs. adolescent immigrant children whose L1 literacy skills are well developed. Also, the relationship of language proficiency to cognitive and academic variables will vary both between L1 and L2 contexts and also within L2 contexts, depending upon the con-

ditions of acquisition. Thus, almost by definition, the "species minimum" will be attained by all native speakers regardless of academic or cognitive abilities; however, this will not necessarily be the case among L2 learners. For example, pronunciation skills may remain poorly developed among many older L2 learners. Also, cognitive and personality variables are likely to differentially influence the acquisition of different aspects of L2 proficiency in different contexts. As Fillmore (1979) suggests, personality variables (e. g., sociability) may be most influential in determining the acquisition rate of L2 face-to-face communication skills in a peer interaction situation; however, cognitive skills in a peer interaction situation; however, cognitive skills may be more involved in determining the acquisition rate of L2 literacy skills in a classroom context.

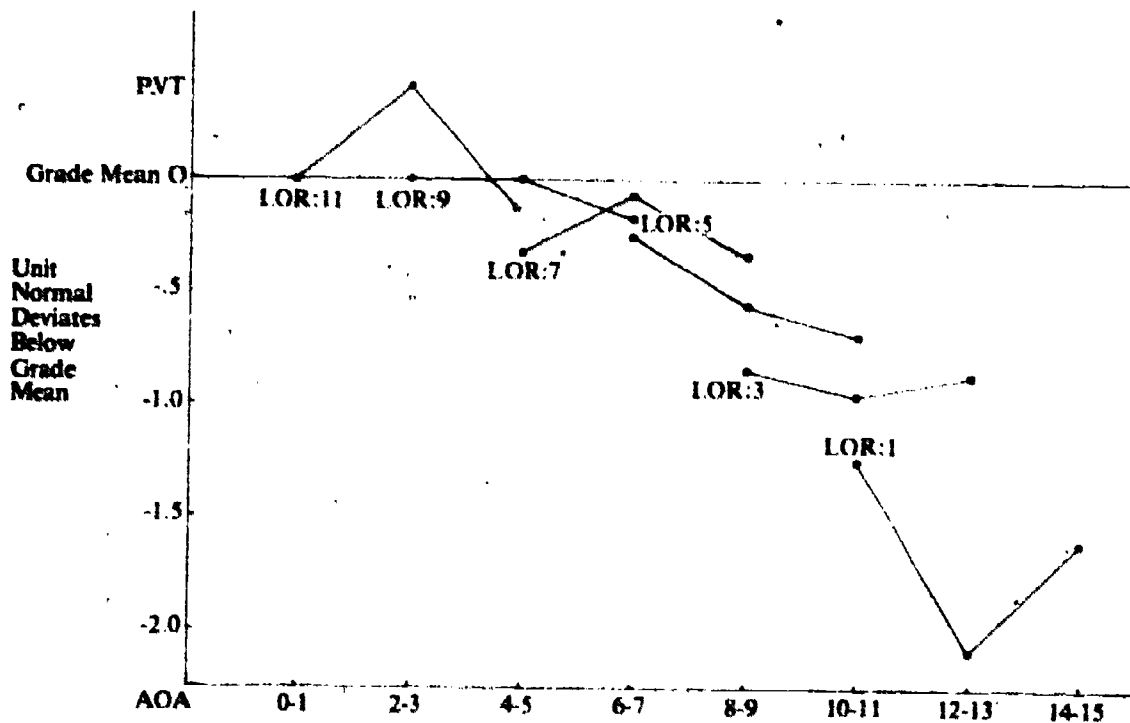
In short, current theories of communicative competence are not particularly helpful in elucidating issues related to the development of English proficiency by language minority students. This is because these theories (1) fail to incorporate a developmental perspective; (2) fail to consider the development of communicative competence explicitly in relation to specific contexts, in particular the school context; and (3) fail to examine the developmental relationships between L1 and L2. In other words, the usefulness of most current theories is limited because they either exist in a developmental and contextual vacuum or else have been proposed in a very different context from that of bilingual education in the United States.

The necessity for considering the question of what constitutes language proficiency in school contexts from a developmental perspective is highlighted by a recent study which shows that immigrant students arriving after age six take between six and seven years to approach grade norms in English academic skills (Cummins, 1981). Results of this study, conducted among 1,210 immigrant students in the Toronto Board of Education, are shown in Figure 1. The Picture Vocabulary Text (PVT) consisted of a group-administered vocabulary test, and results were broken down by Age on Arrival (AOA) and Length of Residence (LOR).

Clearly, it takes considerably longer for immigrant students to develop age-appropriate academic skills in English (five-seven years LOR) than it does to develop certain aspects of age-appropriate English communicative skills (approximately two years). The reason is not difficult to see. Literacy-related language skills (such as vocabulary range) continue to develop among native speakers throughout the school years, whereas some salient aspects of face-to-face communicative skills reach a plateau by about age six. Clearly, many other aspects of face-to-face com-

Figure 1

**AGE ON ARRIVAL, LENGTH OF RESIDENCE, AND PVT
STANDARD SCORES**



municative skills continue to develop throughout the school years; but the data considered above suggest that these are not particularly salient for teachers and psychologists.

In a previous section, it was pointed out that failure to distinguish these two dimensions of English proficiency can result in educational deficits for language minority students. At this point, it may be helpful to describe this distinction more completely and place it into a broader theoretical framework so that it can be used to examine the developmental relationships between L1 and L2 proficiency within bilingual education programs.

A Theoretical Framework⁴

To recapitulate, three minimal requirements for a theoretical framework of communicative proficiency relevant to bilingual education in the United States have been outlined: First, such a framework must incorporate a developmental perspective so that those aspects of communicative proficiency mastered early by native speakers and L2 learners can be distinguished from those varying across individuals as development progresses; second, the framework must permit differences between the linguistic demands of school and those of interpersonal contexts outside the school to be described; and third, the framework must allow for the developmental relationships between L1 and L2 proficiency to be described.

The framework developed in response to these requirements is presented in Figure 2. The framework proposes that in the context of United States bilingual education, communicative proficiency can be conceptualized along two continuums. A continuum related to the range of contextual support available for expressing or receiving meaning is described in terms of "context-embedded" versus "context-reduced" communication. The extremes of this continuum are distinguished by the fact that in context-embedded communication the participants can actively negotiate meaning (e.g., by providing feedback that the message has not been understood) and the language is supported by a wide range of meaningful paralinguistic (gestures, intonation, etc.) and situational cues; context-reduced communication, on the other hand, relies primarily (or at the extreme of the continuum, exclusively) on linguistic cues to meaning and may, in some cases, involve suspending knowledge of the "real" world in order to interpret (or manipulate) the logic of communication appropriately.⁵

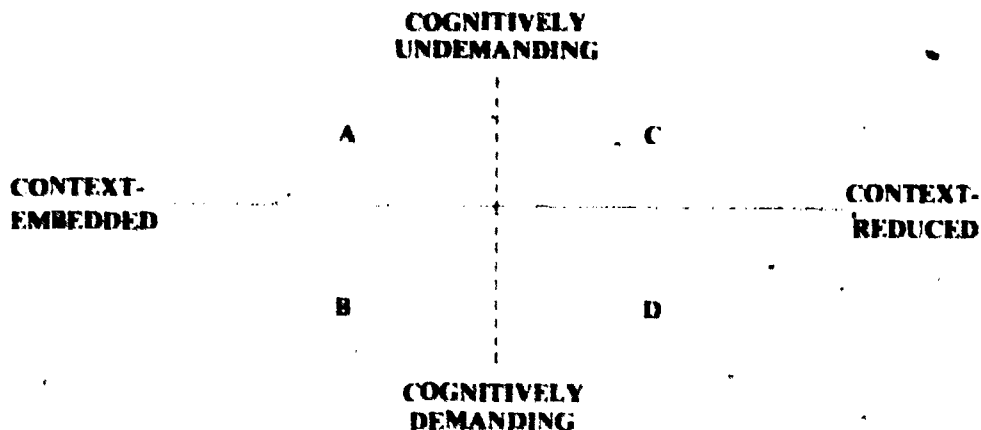
In general, context-embedded communication derives from interpersonal involvement in a shared reality that reduces the need for explicit linguistic elaboration of the message. Context-reduced communication, on the other hand, derives from the fact that this shared reality cannot be assumed and thus linguistic messages must be elaborated precisely and explicitly so that the risk of misinterpretation is minimized. It is impor-

⁴This theoretical framework should be viewed within a social context. The language proficiencies described develop as a result of various types of communicative interactions in home and school. The nature of these interactions is, in turn, determined by broader societal factors, as described later in this paper.

⁵The term "context-reduced" is used rather than "disembedded" (Donaldson, 1978) or "decontextualized" because there is a large variety of contextual cues available to carry out tasks even at the context-reduced end of the continuum. The difference, however, is that these cues are exclusively *linguistic* in nature.

Figure 2

**RANGE OF CONTEXTUAL SUPPORT AND DEGREE OF
COGNITIVE INVOLVEMENT IN COMMUNICATIVE
ACTIVITIES**



tant to emphasize that this is a continuum and not a dichotomy. Thus, examples of communicative behaviors going from left to right along the continuum might be: engaging in a discussion, writing a letter to a close friend, and writing (or reading) an academic article. Clearly, context-embedded communication is more typical of the everyday world outside the classroom, whereas many of the linguistic demands of the classroom reflect communication that is closer to the context-reduced end of the continuum. Recent research, reviewed by Tannen (1980), suggests that part of minority students' failure in mainstream classrooms may derive from application of context-embedded strategies in the school setting where context-reduced strategies (e.g., responding in terms of the logic of the text rather than in terms of prior knowledge) are expected and rewarded.

The vertical continuum is intended to address the developmental aspects of communicative competence in terms of the degree of active cognitive involvement in the task or activity. Cognitive involvement can be conceptualized in terms of the amount of information that must be

processed simultaneously or in close succession by the individual in order to carry out the activity.

How does this continuum incorporate a developmental perspective? If we return to the four components of communicative competence (grammatical, sociolinguistic, discourse, and strategic) discussed by Canale (1981), it is clear that within each one some subskills are mastered more rapidly than others. In other words, some subskills (e.g., pronunciation and syntax within L1 grammatical competence) reach plateau levels at which there are no longer significant differences in mastery between individuals (at least in context-embedded situations). Other subskills continue to develop throughout the school years and beyond, depending upon the individual's communicative needs.

Thus, the upper parts of the vertical continuum consist of communicative tasks and activities in which the linguistic tools have become largely automatized (mastered) and thus require little active cognitive involvement for appropriate performance. At the lower end of the continuum are tasks and activities in which the communicative tools have not become automatized and thus require active cognitive involvement. Persuading other individuals that your point of view rather than theirs is correct, or writing an essay on a complex theme, are examples of such activities. In these situations, it is necessary to stretch one's linguistic resources (i.e., grammatical, sociolinguistic, discourse, and strategic competencies) to the limit in order to achieve one's communicative goals. Obviously, cognitive involvement can be just as intense in context-embedded as in context-reduced activities.

As mastery is developed, specific linguistic tasks and skills travel from the bottom towards the top of the vertical continuum. In other words, there tends to be a high level of cognitive involvement in task or activity performance until mastery has been achieved or, alternatively, until a plateau level at less than mastery levels has been reached (e.g., L2 pronunciation in many adult immigrants).⁸ Thus, learning the phonology and syntax of L1, for example, requires considerable cognitive involvement for the two- and three-year-old child, and thus these tasks would be placed in quadrant B (context-embedded, cognitively demanding). However, as mastery of these skills develops, tasks involving them would move from quadrant B to quadrant A, since performance becomes

⁸ Bereiter and Scardamalia (1980) point out that as children learn to write, the progressive automatization of lower level skills (e.g., handwriting, spelling of common words, punctuation, common syntactic forms, etc.) releases increasingly more mental capacity for higher level planning of large chunks of discourse. To illustrate what writing must be like for a young child, they suggest trying to do some original writing with the wrong hand. It is likely to be difficult to think much beyond the word being written.

increasingly automatized and cognitively demanding. In a second language context, the same type of developmental progression occurs. As specific linguistic tasks and skills are mastered in L2, they move up the vertical continuum.⁷

Literacy Development and Communicative Proficiency. Clearly, within this theoretical framework, literacy is viewed as one aspect of communicative proficiency. Although there are inherent characteristics of literacy tasks that place them towards the context-reduced end of the horizontal continuum, most theorists would agree that the more reading and writing instruction can be embedded in a meaningful communicative context (i.e., related to children's previous experience), the more successful it is likely to be. As the papers (this volume) by Krashen (1981) and Terrell (1981) emphasize, the same principle holds for second language instruction. The more context-embedded the initial L2 input, the more comprehensible it will be and, paradoxically, the more successful in ultimately developing L2 skills in context-reduced situations. Thus, a major pedagogical principle for both L1 and L2 teaching is that language skills in context-reduced situations can be most successfully developed on the basis of initial instruction which maximizes the degree of context-embeddedness.

In terms of the vertical continuum, developmental relationships between cognitive ability and reading performance can be readily interpreted. Singer (1977) reviews data that show a change between grades 1

⁷An implication of this theoretical framework for theories of communicative competence is that there is likely to be different relationships among language tasks in a first language, compared to a second language context. This is because L2 learners are likely to have lower levels of certain L2 skills as compared to native speakers. In other words, tasks located close to the top of the vertical continuum for native speakers may be close to the bottom for L2 learners. Also, acquisition contexts may vary between L2 learners and native speakers. For example, skills acquired in context-embedded situations by native speakers may have been learned in context-reduced situations (e.g., formal classrooms) by L2 learners. This would also result in variable relationships among language skills between native speakers and L2 learners. Thus, an important characteristic of the theoretical framework is that although communicative tasks and activities can be mapped onto it in a general way (e.g., inherent text characteristics make reading and writing less context-embedded than face-to-face communication), the exact location of any particular task on the horizontal and vertical continuums will depend on the individual's or group's proficiency level and acquisition context. Thus, for immigrant students in the host country for two years, academic tasks in L2 are likely to be more cognitively demanding and context-reduced than for native speakers.

Space does not permit the question of individual differences in learning styles among L2 learners to be discussed in detail. However, within the present framework, learning style can be regarded as the way in which individual learners define the degree of cognitive involvement and context-embeddedness of particular tasks. Thus, at least three factors must be taken into account in locating any particular task in relation to the two continuums: (1) the task's inherent characteristics, (2) the learner's general level of proficiency, and (3) the learner's individual learning style.

and 5 in the amount of common variance between IQ and reading achievement from 16 to 64 percent (correlations of .40 to .79). He interprets this in terms of the nature of the component skills stressed in reading instruction at different grade levels.⁸

As reading achievement shifts from predominant emphasis on word recognition to stress on word meaning and comprehension, the mental functions being assessed by intelligence and reading tests have more in common.
(Singer, 1977, p. 48)

As development progresses, word meaning and reasoning-in-reading (e.g., inferring and predicting text meaning) rather than word decoding skills account for the variance between good and poor readers. In terms of the present framework, word meaning and reasoning-in-reading skills remain in the lower end of the vertical continuum (i.e., variance between individuals in these skills remains large), whereas word recognition skills tend to climb towards the upper end of the continuum as development progresses. In other words, as fluency in reading is acquired, word recognition skills are first automatized and then totally short-circuited, since the proficient reader does not read individual words but engages in a process of sampling from the text to confirm predictions (Smith, 1978).

Relevance of the Theoretical Framework to the Achievement of Language Minority Students. A major aim of literacy instruction in schools is to develop students' abilities to manipulate and interpret context-reduced cognitively demanding texts (quadrant D). One reason why language minority students have often failed to develop high levels of academic skills is because their initial instruction has emphasized context-reduced communication, since instruction has been through English and unrelated to their prior out-of-school experiences. Attempts to teach English through context-reduced audiolingually-based ESL may very well have been counter-productive in some respects (Legarreta, 1979).

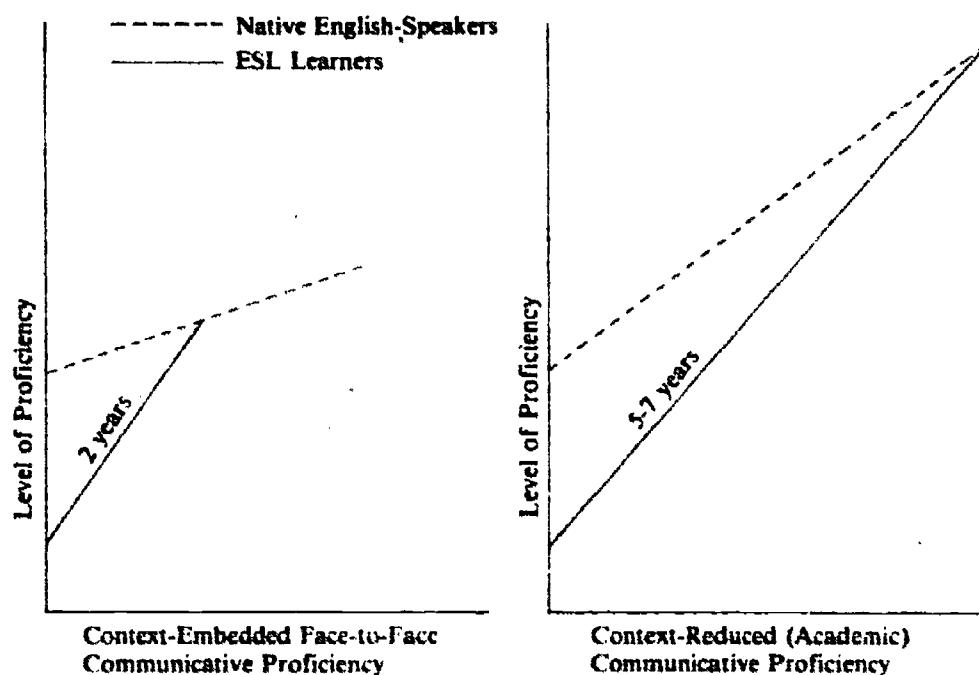
However, another contributing factor to minority students' academic failure, and one which is still operating even in the context of bilingual programs, is that many educators have a very confused notion of what it means to be proficient in English. If language minority students manifest proficiencies in some context-embedded aspects of English (quadrant A), they are often regarded as having sufficient English proficiency both to follow a regular English curriculum and to take psychological and educational tests in English. What is not realized by many educators is that

⁸Clearly, the relationships between IQ and early reading achievement may vary as a function of the instructional approach.

because of language minority students' ESL background, the regular English curriculum and psychological assessment procedures are considerably more context-reduced and cognitively demanding than they are for English-background students. As was pointed out earlier, research findings suggest that it takes much longer for language minority students to approach commonly accepted age/grade norms in context-reduced aspects of English proficiency (five to seven years on the average) than it does in context-embedded aspects (approximately two years on the average).⁹ Hypothetical curves representing these data are presented in Figure 3.

Figure 3

LENGTH OF TIME REQUIRED TO ACHIEVE AGE-APPROPRIATE LEVELS OF CONTEXT-EMBEDDED AND CONTEXT-REDUCED COMMUNICATIVE PROFICIENCY



⁹Native-speakers also, of course, take much longer to develop proficiency in processing language in context-reduced situations.

In summary, I have tried to show how certain misconceptions regarding the notion of language proficiency are currently contributing to the academic failure of language minority students. To more adequately address the issue of the acquisition of English proficiency in bilingual programs, a theoretical framework has been developed in which two continuums are distinguished. One deals with the range of contextual supports for the communicative activity while the other is concerned with the degree of active cognitive involvement in the activity. Literate cultures typically require their members to become proficient in communicative activities which are context-reduced and cognitively demanding (e.g., reading and writing). There tends to be large individual differences both within and between socio-economic groups in the extent to which this dimension of communicative proficiency is developed.¹⁰ In the remainder of this paper, the dimension of language which is strongly related to literacy skills will be termed "context-reduced language proficiency."¹¹

In the next section, several theoretical distinctions similar to those developed in the present framework are briefly discussed, in order to further elaborate the characteristics of context-reduced language proficiency.

Related Theoretical Frameworks

Several theorists interested primarily in the development of first language academic skills have similarly argued for the necessity to distinguish between the processing of language in informal everyday interpersonal situations and the language processing required in most academic situations (Bereiter and Scardamalia, 1981; Donaldson, 1978; Olson, 1977). In concrete terms, it is argued that reading a difficult text or writing an essay make fundamentally different information processing

¹⁰Wells (1979), in a ten-year longitudinal study, has identified two broad types of home communicative activities that strongly predict the acquisition of reading skills in school. One is the extent to which there is "negotiation of meaning" (i.e., quality and quantity of communication) between adults and children, the other is the extent to which literacy-related activities are promoted in the home, e.g., reading to children). There is no clear-cut relationship between socio-economic status (SES) and the former, but a strong relationship between SES and the latter.

¹¹In previous articles I have contrasted cognitive/academic language proficiency (CALP) with basic interpersonal communicative skills (BICS) in order to make the same point; namely, academic deficits are often created by teachers and psychologists who fail to realize that it takes language minority students considerably longer to attain grade/age-appropriate levels in English academic skills than it does in English face-to-face communicative skills. However, because this distinction was not explicitly integrated into a more general theoretical framework, misinterpretation occurred. Hence, the attempt to define such a framework in this paper.

demand on the individual compared to engaging in a casual conversation with a friend.

Embedded and Disembedded Thought and Language. Donaldson (1978) distinguishes between embedded and disembedded thought and language from a developmental perspective and is especially concerned with the implications for children's adjustment to formal schooling. She points out that young children's early thought processes and use of language develop within a "flow of meaningful context" in which the logic of words is subjugated to perception of the speaker's intentions and salient features of the situation. Thus, children's (and adults') normal productive speech is embedded within a context of fairly immediate goals, intentions, and familiar patterns of events. However, thinking and language, which move beyond the bounds of meaningful interpersonal context, make entirely different demands on the individual in that it is necessary to focus on the linguistic forms themselves for meaning rather than on the intentions.

Donaldson (1978) offers a re-interpretation of Piaget's theory of cognitive development from this perspective and reviews a large body of research that supports the distinction between embedded and disembedded thought and language. Her description of pre-school children's comprehension and production of language in embedded contexts is especially relevant to current practices in language proficiency assessment in bilingual programs. She points out that:

...the ease with which preschool children often seem to understand what is said to them is misleading if we take it as an indication of skill with language per se. Certainly they commonly understand us, but surely it is not our words alone that they are understanding—for they may be shown to be relying heavily on cues of other kinds. (Donaldson, 1978, p. 72)

Donaldson goes on to argue that children's facility in producing language that is meaningful and appropriate in interpersonal contexts can also give a misleading impression of overall language proficiency:

When you produce language, you are in control: you need only talk about what you choose to talk about...[the child] is never required, when he is himself producing language, to go counter to his own preferred reading of the situation—to the way in which he himself spontaneously sees it. But this is no longer necessarily true when he becomes the listener. And it is frequently not true when he is the listener in the formal situation of a psychological experiment or indeed when he becomes a learner at school. (1978, pp. 73-74)

The practical implications of this view will be discussed in the context of current assessment practices in bilingual education.

Utterance and Text. Olson's (1977) distinction between "utterance" and "text" relates to whether meaning is largely extrinsic to language (utterance) or intrinsic to language (text). In interpersonal oral situations, the listener has access to a wide range of contextual and paralinguistic information with which to interpret the speaker's intentions; and, in this sense, the meaning is only partially dependent upon the specific linguistic forms used by the speaker. However, in contrast to utterance, written text:

...is an autonomous representation of meaning. Ideally, the printed reader depends on no cues other than linguistic cues; it represents no intentions other than those represented in the text; it is addressed to no one in particular; its author is essentially anonymous; and its meaning is precisely that represented by the sentence meaning. (Olson, 1977, p. 276)

Olson explicitly differentiates the development of the ability to process text from the development of the mother tongue (utterance) in the preschool years:

But language development is not simply a matter of progressively elaborating the oral mother tongue as a means of sharing intentions. The developmental hypothesis offered here is that the ability to assign a meaning to the sentence per se, independent of its nonlinguistic interpretive context, is achieved only well into the school years. (Olson, 1977, p. 275)

Conversation and Composition. Bereiter and Scardamalia (1981) have analyzed the problems of learning to write as problems of converting a language production system geared to conversation over to a language production system capable of functioning by itself. Their studies suggest that some major difficulties involved in this process are the following: (1) learning to continue producing language without prompting from conversational partners; (2) learning to search one's own memory instead of having memories triggered by what other people say; (3) planning large units of discourse instead of only what will be said next; and (4) learning to function as both sender and receiver, the latter function being necessary for revision.

Bereiter and Scardamalia (1980) argue that the absence of normal conversational supports makes writing a radically different kind of task from conversation.

We are proposing instead that the oral language production system cannot be carried over intact into written composition, that it must, in some way, be reconstructed to function autonomously instead of interactively. (p. 3)

Although the distinctions between "embedded-disembedded," "utterance-text," and "conversation-composition" were developed independently and in relation to a different set of data, they share the essential characteristics of the distinctions outlined in the present theoretical framework. The major difference is that the failure of other frameworks to distinguish explicitly between the cognitive and contextual aspects of communicative activities might incorrectly suggest that context-reduced communication (literate tradition) is *intrinsically* more cognitively demanding than context-embedded communication (oral tradition).

Having described in some detail the nature of the academic tasks students encounter in school, it is now possible to discuss the development of bilingual proficiency among language minority students within this context.

The Nature of Bilingual Proficiency

The Myth of Bilingual Handicaps

The image of bilingualism as a negative force in children's development was especially common in the early part of this century when most teachers of language minority children saw bilingualism almost as a disease that not only caused confusion in children's thinking but also prevented them from becoming "good Americans." Therefore, they felt that a pre-condition for teaching children the school language was the eradication of their bilingualism. Thus, children were often punished for speaking their first language in school and were made to feel ashamed of their own language and cultural background. It is not surprising that research studies conducted during this period (Darcy, 1953) often found that bilingual children did poorly at school, many experiencing emotional conflicts. Children were made to feel that it was necessary to reject the home culture in order to belong to the majority culture, often ending up unable to identify fully with either cultural group.

However, rather than considering the possibility that the school's treatment of minority children might be a cause of their failure, teachers, researchers, and administrators seized on the obvious scapegoat and blamed the children's bilingualism. The research findings were interpreted to mean that there is only so much space or capacity available in our brains for language; therefore, if we divide that space between two languages, neither language will develop properly and intellectual confusion will result (Jensen, 1962). Table 1 outlines the interplay between socio-political and psycho-educational considerations in establishing the myth of bilingual handicaps and the role of "scientific studies" in perpetuating it.

The socio-political and psycho-educational assumptions illustrated in Table 1 are very much in evidence in the current bilingual education debate. The popular press frequently warns that bilingual education will lead to social fragmentation and Quebec-style separatist movements. This fear of bilingual education is often rationalized in psycho-educational terms; namely, that if minority children are deficient in English, then they need instruction in English, not in their first language.

Table 1

BLAMING THE VICTIM IN MINORITY LANGUAGE EDUCATION*

<p>A. Overt aim</p> <p>Teach English to minority children in order to create a harmonious society with equal opportunity for all.</p>	<p>Covert aim</p> <p>Anglicize minority children because linguistic and cultural diversity are seen as a threat to social cohesion.</p>	<p>D. Outcomes</p> <p>Even more intense efforts by the school to eradicate the deficiencies inherent in minority children.</p>	<p>The failure of these efforts only serves to reinforce the myth of minority group deficiencies.</p>
<p>B. Method</p> <p>Prohibit use of L1 in schools and make children reject their own culture and language in order to identify with majority English group.</p>	<p>Justification</p> <p>1. L1 should be eradicated because it will interfere with the learning of English.</p> <p>2. Identification with L1 culture will reduce child's ability to identify with English-speaking culture.</p>	<p>C. Results</p> <p>1. Shame in L1 language and culture.</p> <p>2. Replacement of L1 by L2.</p> <p>3. School failure among many children.</p>	<p>"Scientific" explanation</p> <p>1. Bilingualism causes confusion in thinking, emotional insecurity, and school failures.</p> <p>2. Minority group children are "culturally deby definition since they are not Anglos).</p> <p>3. Some minority language groups are genetically inferior (common theory in the United States in the 1920s and 1930s).</p>

* This table reflects the assumptions of North American school systems in the first half of this century. However, similar assumptions have been made about minority language children in the school systems of many other countries.

Consider, for example, the view expressed by Bethell (1979):

Bilingual education is an idea that appeals to teachers of Spanish and other tongues, but also to those who never did think that another idea, the United States of America, was a particularly good one to begin with, and that the sooner it is restored to its component "ethnic" parts the better off we shall all be. Such people have been welcomed with open arms into the upper reaches of the federal government in recent years, giving rise to the suspicion of a death wish. (p. 30)

The psycho-educational argument appears later when Bethell (1979) approvingly quotes Congressman John Ashbrook's opposition to bilingual education:

The program is actually preventing children from learning English. Someday somebody is going to have to teach those young people to speak English or else they are going to become public charges. Our educational system is finding it increasingly difficult today to teach English-speaking children to read their own language. When children come out of the Spanish-language schools or Choctaw-language schools which call themselves bilingual, how is our educational system going to make them literate in what will still be a completely alien tongue...? (pp. 32-33)

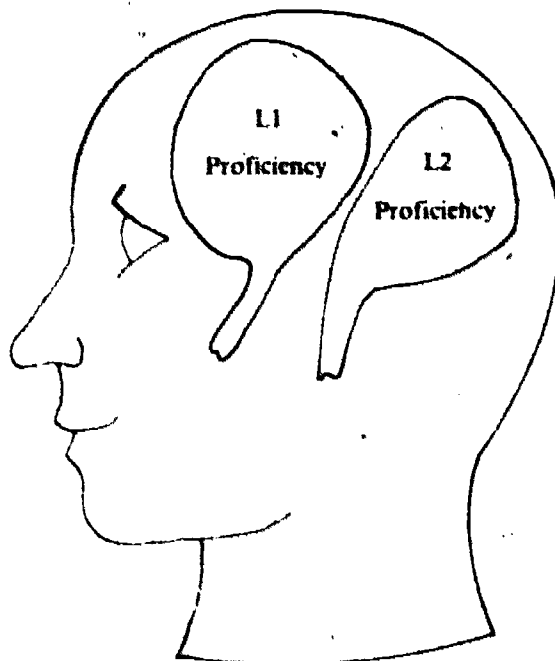
The argument that deficiencies in English should be remediated by intensive instruction in English appears at first sight much more intuitively appealing than the alternative argument that instruction in L1 will be more effective than instruction in English in promoting English skills. This latter argument appears to invoke a "less equals more" type of logic that is unlikely to convince skeptics. In order to evaluate these alternative positions, it is necessary to make their propositions more explicit and make empirical evidence rather than "common sense" the criterion of validity. The issues revolve around two alternative conceptions of bilingual proficiency, termed the Separate Underlying Proficiency (SUP) and Common Underlying Proficiency (CUP) models.

The SUP and CUP Models of Bilingual Proficiency

The argument that if minority children are deficient in English, then they need instruction in English, not in their L1, implies: (a) that proficiency in L1 is separate from proficiency in English, and (b) that there is a direct relationship between exposure to a language (in home or school) and achievement in that language. The SUP model is illustrated in Figure 4.

Figure 4

**THE SEPARATE UNDERLYING PROFICIENCY (SUP) MODEL
OF BILINGUAL PROFICIENCY**



The second implication of the SUP model follows from the first, that if L1 and L2 proficiency are separate, then content and skills learned through L1 cannot transfer to L2 and vice versa. In terms of the balloon metaphor illustrated in Figure 4, blowing into the L1 balloon will succeed in inflating L1 but not L2. When bilingual education is approached with these "common-sense" assumptions about bilingual proficiency, it is not at all surprising that it appears illogical to argue that one can better inflate the L2 balloon by blowing into the L1 balloon.

However, despite its intuitive appeal, there is not one shred of evidence to support the SUP model.¹² In order to account for the evidence reviewed, we must posit a CUP model in which the literacy-related aspects

¹² Macnamara (1970) points out that a strict interpretation of a SUP model would leave the bilingual in a curious predicament in that "...he would have great difficulty in 'communicating' with himself. Whenever he switched languages he would have difficulty in explaining in L2 what he had heard or said in L1" (pp. 25-26). It is not surprising that the SUP model is not seriously proposed by any researcher. Nevertheless, it is important to examine the research evidence in relation to this model, since many educators and policy-makers espouse positions in regard to bilingual education which derive directly from this implicit model.

of a bilingual's proficiency in L1 and L2 are seen as common or interdependent across languages. Two ways of illustrating the CUP model (the Interdependence Hypothesis) are shown in Figures 5 and 6.

Figure 5

**THE COMMON UNDERLYING PROFICIENCY MODEL (CUP)
OF BILINGUAL PROFICIENCY**

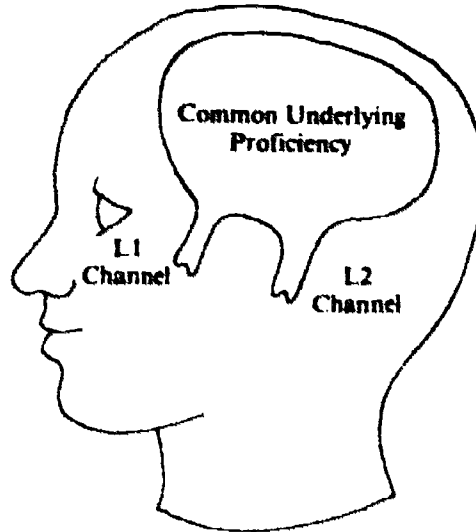


Figure 6

**THE "DUAL-ICEBERG" REPRESENTATION OF
BILINGUAL PROFICIENCY**

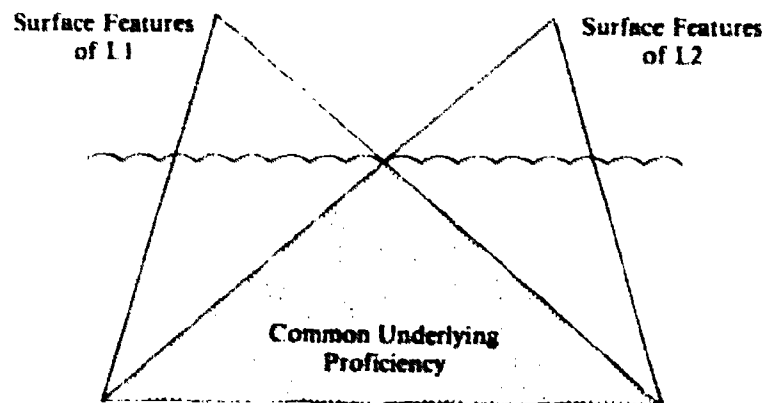


Figure 5 expresses the point that experience with either language can promote development of the proficiency underlying both languages, given adequate motivation and exposure to both either in school or in the wider environment. In Figure 6 bilingual proficiency is represented by means of a "dual iceberg" in which common cross-lingual proficiencies underlie the obviously different surface manifestations of each language. In general the surface features of L1 and L2 are those that have become relatively automatized or less cognitively demanding whereas the underlying proficiency is that involved in cognitively demanding communicative tasks.¹³

There are five major sources of evidence for the CUP model: (1) results of bilingual education programs, (2) studies relating age on arrival and immigrant students' L2 acquisition, (3) studies relating bilingual language use in the home to academic achievement, (4) studies of the relationship between L1 and L2 proficiency, and (5) experimental studies of bilingual information processing. The first three sources will be considered in more detail than the latter two because of their direct relevance to current concerns of bilingual educators in the United States.

Evaluations of Bilingual Programs

Although there is a widespread perception that bilingual education has yet to prove its effectiveness (Trombley, 1980), findings of the available, well-controlled research are strongly supportive of the basic principle underlying bilingual education, i.e., the CUP model of bilingual proficiency. For example, Troike (1978) reviewed 12 evaluations and several research studies in which bilingual instruction was found to be more effective than English-only instruction in promoting English academic skills. Two of these evaluations are outlined here as well as several other evaluations in the United States and elsewhere that clearly refute the SUP model.

Rock Point Navajo Study. Before the bilingual program was started in 1971, children were two years behind United States norms in

¹³ The data used to support the CUP model primarily involve "context-reduced language proficiency" because the model is developed explicitly in relation to the development of bilingual academic skills. It is probable, however, that many aspects of "context-embedded language proficiency" may also be interdependent across languages. As far as context-reduced language proficiency is concerned, the transferability across languages of the proficiencies involved in reading (e.g., inferring and predicting meaning based on sampling from the text) and writing (e.g., planning large chunks of discourse) is obvious. However, even where the task demands are language specific (e.g., decoding or spelling), a strong relationship may be obtained between skills in L1 and L2 as a result of a more generalized proficiency (and motivation) to handle cognitively demanding context-reduced language tasks. Similarly, on the context-embedded side, many sociolinguistic rules of face-to-face communication are language-specific, but L1 and L2 sociolinguistic skills may be related as a result of a possible generalized sensitivity to sociolinguistic rules of discourse.

English reading by the end of sixth grade despite intensive teaching of English as a second language. The bilingual program used Navajo as the major initial medium of instruction and continued its use throughout elementary school. English reading instruction was delayed until Navajo reading skills were well established (mid-second grade). By the end of the sixth grade, children in the bilingual program were performing slightly *above* United States grade norms in English reading despite considerably less exposure to English than previously (Rosier and Farella, 1976).

Santa Fe Bilingual Program. In the schools involved in this program, Spanish was used for between 30 and 50 percent of the school day throughout elementary school. It was found that children enrolled in the bilingual program consistently performed significantly better than the control group (in an English-only program) in both reading and mathematics. Children enrolled continuously in the bilingual program from second grade caught up with United States norms in English reading by fifth grade and stayed close in sixth grade. In math this group surpassed the national average in fourth grade and maintained an equal or superior status through sixth grade (Leyba, 1978).

Legarreta Study: Direct ESL-Bilingual Comparison. A study carried out by Legarreta (1979) in California compared the effectiveness of three types of bilingual treatments with two types of English-only treatments in facilitating the development of English communicative competence in Spanish-background kindergarten children. The three bilingual treatments were found to be significantly superior to the two English-only treatments in developing English language skills. The most effective program was one with balanced bilingual usage (50 percent English, 50 percent Spanish).

Nestor School Bilingual Program Evaluation. The Nestor program in San Diego involved both Spanish- and English-background students and used a team teaching approach in which instruction in the early grades was primarily through the children's L1. The proportion of instruction in L2 was gradually increased until, by fourth grade, approximately 50 percent of instruction was through each language. The evaluation of the program (Evaluation Associates, 1978) showed that Spanish-background students gained an *additional* .36 of a year's growth in English reading for each successive year they spent in the bilingual program. Spanish-background students who had spent five years or more in the bilingual program at the elementary level tended to perform slightly better in English reading than the school average at the junior high school level, despite the fact that at least 37 percent of the comparison group were originally native English speakers. In mathematics, the sixth grade

Spanish-background children in the program were over a year ahead of the Spanish speakers in the comparison district and only one month behind grade level. The English-background participants in the Nestor bilingual program performed at a higher level than the comparison groups on a large majority of measures; however, this may be due to a selection bias.

The Colorado Bilingual Programs Evaluation. Egan and Goldsmith (1981) and Egan (1981) report on the "overwhelming success" of bilingual programs in Colorado for both language minority and Anglo students. Over 90 percent of the 39 programs for which data were available reported that "limited-English-proficient" students showed a rate of academic progress at least as good as that normally expected for all students. More surprising, however, was the fact that 50 percent of the programs showed growth rates in English academic skills for language minority students well beyond the normal expected growth rates for all students. These results are especially significant in view of previous research in Colorado (Egan and Goldsmith, 1981) showing that Hispanic students tended to fall progressively further behind grade norms during the elementary school years.

Sodertälje Program for Finnish Immigrant Children in Sweden. The findings of this evaluation are very similar to those of the Rock Point Navajo evaluation. Finnish children in Swedish-only programs were found to perform worse in Finnish than 90 percent of equivalent socio-economic status Finnish children in Finland and worse in Swedish than about 90 percent of Swedish children (Skutnabb-Kangas and Toukomaa, 1976). The Sodertälje program, however, used Finnish as the major initial language of instruction and continued its use throughout elementary school. Swedish became the major language of instruction from third grade. By sixth grade, children's performances in this program in both Finnish and Swedish were almost at the same level as that of Swedish-speaking children in Finland, a considerable improvement in both languages compared to their performances in Swedish-only programs (Hanson, 1979).

Manitoba-Francophone Study. A large-scale study carried out by Hébert *et al.* (1976) among third, sixth, and ninth grades, in which minority francophone students in Manitoba were receiving varying amounts of instruction through the medium of French, found that the amount of French-medium instruction showed no relationship to children's achievement in English. In other words, francophone students receiving 80 percent instruction in French and 20 percent instruction in English did just as well in English as students receiving 80 percent instruction in English and 20 percent instruction in French. However,

amount of instruction in French was positively related to achievement in French. In other words, students' French benefited at no cost to their progress in English.

Edmonton Ukrainian-English Bilingual Program. This program has existed in eight Edmonton elementary schools since 1972 and is financially supported by the Alberta government. In 1978-1979 there were 697 students enrolled between kindergarten and fifth grades. Ukrainian is used as a medium of instruction for 50 percent of the regular school day throughout elementary school. Only about 15 percent of the students are fluent in Ukrainian on entry to the program. A study carried out with first and third grade students (Cummins and Mulcahy, 1978) found that students who were relatively fluent in Ukrainian as a result of parents using it consistently in the home were significantly better able to detect ambiguities in *English* sentence structure than either equivalent monolingual English-speaking children not in the program or children in the program who came from predominantly English-speaking homes. The evaluations of the program have shown no detrimental effects on the development of children's English or other academic skills. In fact, by the end of fifth grade children in the program had pulled ahead of the comparison group in English reading comprehension skills (Edmonton Public School Board, 1979).

In summary, the results of research on bilingual programs show that minority children's L1 can be promoted in school at no cost to the development of proficiency in the majority language. In other words, the educational argument against bilingual education is invalid; in order to explain the findings, it is necessary to posit a common proficiency dimension that underlies the development of academic skills in both languages. The data clearly show that well-implemented bilingual programs have had remarkable success in developing English academic skills and have proved superior to ESL-only programs in situations where direct comparisons have been carried out.

How do we reconcile the success of L1-medium programs for minority children with the fact that majority language children fare very well academically in French or Spanish immersion programs (Cummins, 1979b; Swain, 1978)?¹⁴ There are many differences between these situations, e.g., prestige of L1, security of children's identity and self-concept, and level of support for L1 development in home and environ-

¹⁴A French immersion program involves teaching students from English home backgrounds through the medium of French for a major part of the school day from kindergarten through high school. The goal is bilingualism in French and English. These programs are now extremely common in Canada, and evaluations show that students gain high levels of French proficiency at no cost to proficiency in English (Swain, 1978).

ment. Thus, it is not surprising that different forms of educational programs should be appropriate for children with very different background characteristics. The apparent contradiction between findings in minority and majority contexts completely disappears when we stop thinking in terms of "linguistic mismatch" or "home-school language switch." In immersion programs for majority language children, as well as in bilingual programs for minority children, instruction through the *minority* language has been effective in promoting proficiency in *both* languages. These findings, which have been replicated in an enormous number of studies, support the following "Interdependence" Hypothesis: *To the extent that instruction in L_x is effective in promoting proficiency in L_x , transfer of this proficiency to L_y will occur provided there is adequate exposure to L_y (either in school or environment) and adequate motivation to learn L_y .* In other words, far from being contradictory, the same theoretical principle, the CUP model, underlies immersion programs for majority language students as well as bilingual programs for language minority students.

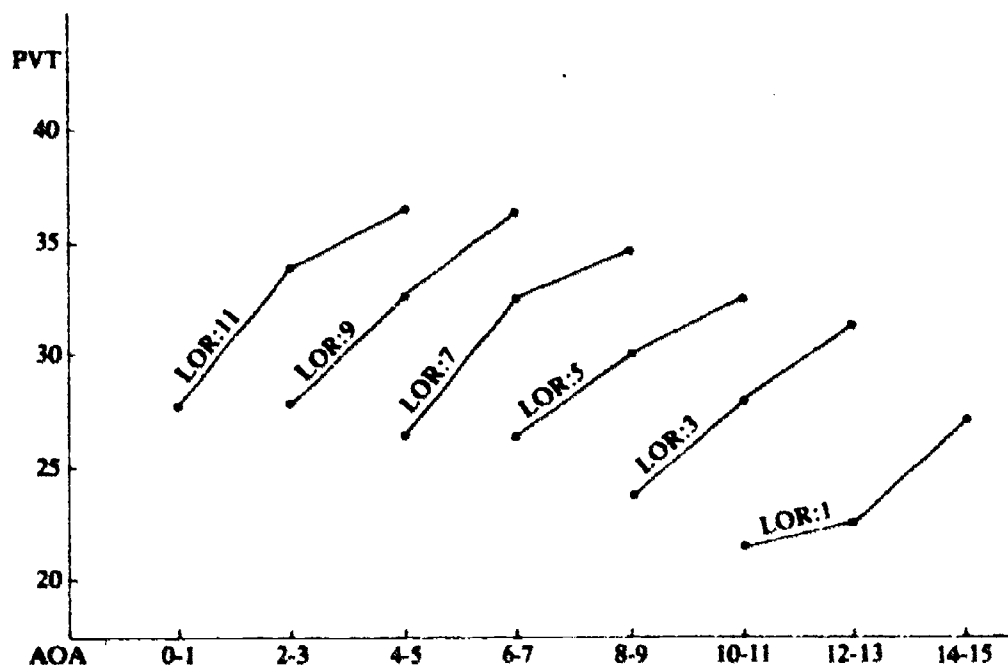
Age on Arrival and L2 Acquisition

It would be predicted on the basis of the Interdependence Hypothesis that older learners who are more cognitively mature and whose L1 proficiency is better developed would acquire cognitively demanding aspects of L2 proficiency more rapidly than younger learners. Recent reviews of research on the age issue confirm this prediction (Cummins, 1980a; Cummins, 1981; Ekstrand, 1977; Genesee, 1978; Krashen *et al.*, 1979). The only area where research suggests older learners may not have an advantage is pronunciation, which, significantly, appears to be one of the least cognitively demanding aspects of both L1 and L2 proficiency. In terms of the model presented in Figure 3, we would expect the advantage of older learners to be especially apparent in context-reduced aspects of L2 proficiency because of their greater amount of experience in processing context-reduced aspects of L1.

The extent of the advantage older learners have in acquiring context-reduced cognitively demanding aspects of L2 is illustrated by the data in Figure 7. The test, a group adaptation of the *Ammons Picture Vocabulary Test* (Ramsey and Wright, 1972), and subjects (1,210 fifth, seventh, and ninth grade immigrant students in the Toronto Board of Education) are the same as in Figure 1. However, the data are presented in terms of absolute scores on the test rather than in terms of grade norms. In Figure 1, older and younger L2 learners appeared to approach grade norms at a generally comparable rate. However, because older learners have further to go in order to reach grade-appropriate levels of

Figure 7

AGE ON ARRIVAL, LENGTH OF RESIDENCE, AND PVT RAW SCORES



L2 academic proficiency (consider, for example, the difference between the vocabulary knowledge of a twelve- and six-year-old monolingual English child), we would expect them to acquire more L2 than younger learners in absolute terms in the same amount of time. This is clearly the case in Figure 7. In this study, it was possible to make 90 comparisons between older and younger learners on context-reduced cognitively demanding aspects of L2. In 89 of these, older learners performed better.¹⁵

¹⁵ It may appear surprising that older learners make more rapid progress in acquiring L2 in view of the popular myth that there is an optimal pre-pubertal age for L2 acquisition. However, a major reason for the advantage is obvious when the data are viewed from within the context of the CUP model. For example, in learning the term "democracy" the task for a 14-year-old immigrant child consists of acquiring a new label for a concept already developed in L1; for a 6-year-old immigrant child the term will not be acquired until the concept has been developed. The advantage of older learners lies in the interdependence of conceptual knowledge across languages.

The relationship between L1 and L2 proficiency in immigrant students was explicitly investigated in two studies. Cummins *et al.* (1981) reported that older Japanese immigrant students, whose L1 literacy skills were better developed, acquired English proficiency significantly faster than younger immigrant students. It was also found that students who immigrated at younger ages developed significantly lower proficiency in Japanese compared to students who immigrated at older ages and who had been in Canada for the same amount of time. All the students in this study were from upper-class backgrounds.

Skutnabb-Kangas and Toukomaa (1976) also report that among Finnish immigrant children in Sweden, the extent to which L1 had been developed prior to contact with Swedish was strongly related to how well Swedish was learned. Children who migrated at age 10-12 maintained a level of Finnish close to Finnish students in Finland and achieved Swedish language skills comparable to those of Swedes. By contrast, children who migrated at younger age levels or who were born in Sweden tended to reach a developmental plateau at a low level in both Finnish and Swedish academic proficiency.

Consistent with the Skutnabb-Kangas and Toukomaa findings (1976), there is considerable anecdotal evidence that immigrant students from Mexico fare better educationally than native-born Mexican-Americans. For example, Troike (1978) stated that:

It is a common experience that...children who immigrate to the United States...after grade six...rather quickly acquire English and soon out-perform Chicano students who have been in United States schools since grade one. (p. 15)

Based on a survey of school personnel in four southwestern states, Carter (1970) similarly reported that many teachers and administrators believe that older immigrant students achieved better than native-born Chicano students.¹⁶

In summary, considerable research supports the prediction derived from the Interdependence Hypothesis that older immigrant children

¹⁶ Two empirical studies (Kimball, 1968; Anderson and Johnson, 1971) support these teacher perceptions. However, a recent study (Baral, 1979) reports that immigrant students who had had at least two years of schooling in Mexico performed significantly lower in academic skills than native-born Mexican students. Two factors are important in interpreting these results: first, the immigrant students came from significantly lower socio-economic backgrounds than the native-born students; second, they had been in United States schools only between two and five years. The Canadian findings reported earlier (Cummins, 1981) suggest that it can take up to seven years for immigrant students to approach grade norms in English academic skills. Students who were in Canada for three years were still approximately one standard deviation below grade norms. Thus, the relatively short length of residence and the socio-economic differences between immigrant and native-born students can account for Baral's (1979) findings.

make more rapid progress than younger children in acquiring L2 proficiency. It should be noted that these relationships between L1 and L2 do not operate in a sociocultural vacuum. The role of sociocultural factors in relation to cognitive and linguistic factors will be considered in a later section.

Primary Language Development in the Home

Several studies show that the use of a minority language in the home is not a handicap to children's academic progress.¹⁷ This was evident in the Cummins and Mulcahy (1978) study of the Ukrainian bilingual program where first and third grade students who used Ukrainian consistently in the home were better able to detect ambiguities in English sentence structure. Two other studies (Bhatnager, 1980; Chesarek, 1981) suggest that, under certain conditions, a switch to the use of the majority language in the home is associated with poor academic progress in the majority language.

Chesarek (1981) carried out a longitudinal study among elementary students on a Crow reservation in Montana in which he identified a subgroup of students who had one or more Crow-speaking parents but were raised as English speakers. This group of students scored significantly lower on a non-verbal ability test at school entry than either native Crow-speaking children or English-speaking children of two English-speaking parents. In a longitudinal follow-up at third grade in one of the reservation schools that utilized a bilingual instructional program, it was found that this group performed worse on several aspects of English achievement than the native Crow-speaking group.¹⁸ Chesarek (1981) sums up these findings as follows:

In other words, children who had only three years exposure to English in a bilingual program context were surpassing children for whom English was the only language. (p. 14)

A very similar pattern of findings emerges from a recent study carried out by Bhatnager (1980) in Montreal, Canada. In this study, the

¹⁷In addition to the studies considered in the text, studies carried out by Carey and Cummins (1979), Ramirez and Politzer (1976), and Yee and La Forge (1974) with minority francophone, Hispanic, and Chinese students, respectively, show that, in itself, the use of a minority L1 in the home is not an impediment to the acquisition of L2 academic skills in school. These findings, of course, create problems of the "linguistic mismatch" rationale for bilingual education, namely, that minority students fail in school because their home language is different from that of the school.

¹⁸Chesarek (1981) points out there was very little bilingual activity in the classroom since the major efforts were being devoted to developing an orthography and teaching materials as well as training aides to assume instructional activities.

academic progress of 171 Italian immigrant children in English language elementary schools and 102 in French language schools was examined in relation to language spoken at home and with friends and siblings. Bhatnager sums up his findings as follows:

The results reported here do not support the popular assumption that the more immigrant children speak the local language the better their adjustment to the host culture. It is interesting to note that immigrant children who used Italian and a Canadian language interchangeably were better even at English or French, of both the spoken and written variety, than children who used English or French all the time....Language retention...should lead to higher academic adjustment, better facility in the host language, and better social relations of immigrant children. (1980, pp. 153-155)¹⁹

In all these instances, the SUP model would have predicted that students exposed exclusively to the majority language at home would perform better than students who used a minority language at home. This prediction receives no support from the research findings; instead, the research supports the prediction derived from the CUP model, that experience with either language is capable of promoting the proficiency that underlies the development of academic skills in both languages.

Thus, whether English or a minority language is used in the home is, in itself, relatively unimportant for students' academic development. As Wells' (1979) study has shown, what is important for future academic success is the quality of interaction children experience with adults. Viewed from this perspective, encouraging minority parents to communicate in English with their children in the home can have very detrimental consequences. If parents are not comfortable in English, the quality of their interaction with their children in English is likely to be less than in L1. Thus, the lower academic achievement of minority children who used L2 exclusively with their parents and friends in Bhatnagar's (1980) and Chesarek's (1981) studies may be attributable to the lower quality of communication their parents were capable of providing in their second language.²⁰

¹⁹Bhatnager (1980) reports that immigrant students who used L1 exclusively with parents and siblings also performed significantly worse than those who used both L1 and L2. However, it seems likely that this finding can be attributed to the fact that only those students who had immigrated relatively recently would use L1 exclusively. Length of residence is not considered in Bhatnager's study, but the data in Figure 1 suggest that it takes immigrant students at least five years to approach grade norms in L2 academic skills.

²⁰Data from two other sources also support the CUP model. These are correlational studies of the relationship between L1 and L2 proficiency and experimental studies of bilingual information processing.

In summary, the research findings from evaluations of bilingual programs, studies of immigrant children's academic progress, and studies that examined the consequences of different patterns of home language use, are consistent with predictions derived from the CUP model. However, the observed relationships between L1 and L2 do not operate independently of the sociocultural context. In the next section the role of sociocultural factors in determining minority students' academic development is considered.

Sociocultural Determinants of Minority Students' Achievement

Linguistic, cognitive, or educational factors by themselves cannot account for the school failure of minority students because there are large individual and group differences in academic achievement of minority students exposed to the same educational conditions (e.g., home-school language switch). Consider, for example, the fact that immigrant students who arrived in Canada before age six achieved grade norms in L2 academic skills (see Figure 1), whereas Finnish students who immigrated to Sweden at an early age attained only a low level plateau in Swedish academic skills. This latter pattern also appears to characterize Hispanic students who immigrate at an early age or who are born in the United States.

What sociocultural factors account for this pattern of *differential* achievement by minority students in different contexts? Socio-economic status (SES) cannot account for the differences because all groups were low SES. Acculturation, or the degree to which minority students adopt the language and cultural values of the majority, likewise fails to account for the data. If acculturation were the major factor at work, we would expect those minority students who used only English at home to perform better academically than those who maintained the use of L1 at home. In fact, as the studies by Chesarek (1981) and Bhatnagar (1980) demonstrate, such "acculturated" students often (but not necessarily

Many studies have shown highly significant correlations between L1 and L2 proficiency (Cummins, 1979a) and it has been reported that Spanish reading proficiency developed in a bilingual program is the most stable predictor of English reading proficiency levels students develop after transferring from the bilingual program (Fischer and Cabello, 1978).

Experimental studies of bilingual information processing have consistently shown that bilinguals process semantic memory information in the same way in their two languages and in the same way as monolinguals (Caramazza and Bronea, 1980; Enriquez, 1980; Koiers, 1988; Landry, 1978, 1980; McCormack, 1974). In other words, bilinguals have only one semantic memory system that can be accessed via two languages. The studies cited above have been carried out with adult bilinguals; however, a recent study (Chu-Chang, 1981) carried out with Chinese elementary school students has reported similar results. She concludes that, at the input and conceptual level, the two languages of the bilingual are in one storage.

always) show lower levels of English academic achievement than students who continue to use their L1 at home and maintain their allegiance to the home culture.²¹

An examination of the sociocultural characteristics of minority groups that tend to perform poorly in L2-only school situations suggests that the attitudes of these groups towards their own identity may be an important factor in interaction with educational treatment. Specifically, groups such as Finns in Sweden, North American Indians, Spanish-speakers in the U.S., and Franco-Ontarians in Canada all tend to have ambivalent or negative feelings towards the majority culture and often also towards their own culture. This pattern has been clearly documented for Finnish immigrants in Sweden by Skutnabb-Kangas and Toukoma (1976). For example, Heyman (1973) concludes:

Many Finns in Sweden feel an aversion, and sometimes even hostility, towards the Swedish language and refuse to learn it...under protest. There is repeated evidence of this, as there is, on the other hand, of Finnish people—children and adults—who are ashamed of their Finnish language and do not allow it to live and develop. (p. 131)

The same pattern of ambivalence or hostility towards the majority cultural group and insecurity about one's own language and culture is found, to a greater or lesser extent, in other minority groups that have tended to perform poorly in school. For example, many Franco-Ontarians tend to regard their own dialect of French as inferior and to show low aspirations for social and economic mobility in the majority anglophone culture. In contrast, minority groups that do well in school tend to be highly motivated to learn the majority language and often (though not always) have a strong sense of pride in their own cultural backgrounds.

According to this interpretation, part of the reason bilingual education is successful in promoting minority students' academic progress is that by validating the cultural identity of the students (as well as that of the community), it reduces their ambivalence towards the majority language and culture. Older immigrant students often fare better than minority students born in the host country because they have not been subject to the same ambivalence towards both cultural groups in their pre-school and early school years and, hence, approach the task of learning L2 with a secure identity and academic self-concept. Similarly, the exclusive use of L2 rather than L1 in the home is likely both to reflect and contribute to minority students' ambivalence towards L2.

²¹I am grateful to Steve Chesarek for pointing this out to me.

Clearly, at this stage, these suggestions in regard to the operation of "bicultural ambivalence" are speculative. However, they appear to account for the data better than a simple "acculturation" explanation and also provide the basis for a more adequate rationale for bilingual education than "linguistic mismatch" between home and school.

How does the operation of sociocultural factors relate to the linguistic factors (e.g., interdependence between L1 and L2) described earlier? The development of communicative proficiency in L1 and L2 can be regarded as an intervening variable mediating the effects of the sociocultural context on achievement. For example, sociocultural factors are likely to affect patterns of parent/child interaction that will influence the development of communicative proficiency (as described in Figure 2) in L1 and/or L2 that will, in turn, influence children's ability to benefit from instruction. Thus, if parents are ambivalent about the value of their cultural background or feel that they speak an inferior dialect of L1, they may not strongly encourage children to develop L1 skills in the home. They may tolerate (or even encourage) children to watch television for a considerable portion of the day on the grounds that this will help them to learn English and do well at school. This attitude may be encouraged by some teachers who believe that children should be exposed to as little L1 as possible.

Compare this situation to that of language minority parents who feel a strong sense of pride in their cultural background and are eager to transmit this cultural heritage to their children. They are likely to spend more time "negotiating meaning" (in L1) with their children, which according to Wells' (1979) findings, is a strong predictor of future academic success. If we assume that those aspects of communicative proficiency most relevant to academic success develop largely as a result of quality and quantity of communication with adults, then children in the second situation will come to school better prepared to handle the context-reduced communicative demands of school than children in the first situation, despite the fact that they may know little or no English (Chesarek, 1981). As the research reviewed in the context of the CUP model clearly shows, communicative proficiency already developed in L1 can readily be transferred to L2, given motivation to learn L2 and exposure to L2.

How do school programs interact with sociocultural and linguistic factors? As outlined in Table 1, schools have contributed directly to minority children's academic difficulties by undermining their cultural identity, attempting to eradicate their L1, and exposing them to incomprehensible context-reduced input in English. Recent evaluations of bilingual educa-

tion, however, have shown that when schools reinforce minority children's cultural identity, promote the development of the L1 communicative proficiency children bring to school, and make instruction in English comprehensible by embedding it in a context that is meaningful in relation to students' previous experience, then minority students experience academic success and develop high English literacy skills, in spite of sociocultural impediments.

In summary, although both sociocultural and educational factors contribute directly to the development of communicative proficiency in minority students, a large majority of academic and communicative *deficits* (e.g., low reading achievement) are developed in these students only as a result of failure by educators to respond appropriately to the sociocultural and communicative characteristics children bring to school.

In this section, bilingual communicative proficiency has been considered as a dependent variable in relation to sociocultural and educational factors. Bilingual communicative proficiency can also be regarded as an intervening variable, which in turn influences the further development of cognitive and academic skills. In other words, how do different patterns of bilingual proficiency influence students' ability to benefit from interaction with their scholastic environment? This issue is considered in the next section.

Bilingual Proficiency as Educational Enrichment: The Threshold Hypothesis

It was pointed out in a previous section that because bilingual children performed more poorly than monolingual children on a variety of verbal-academic tasks in early studies, bilingualism was often regarded as a cause of language handicaps and cognitive confusion. However, more recent findings refute this interpretation. A large number of studies have reported that bilingual children are more cognitively flexible in certain respects and better able to analyze linguistic meaning than are monolingual children (Cummins, 1979b). Albert and Obler (1978) conclude on the basis of neuropsychological research findings that:

Bilinguals mature earlier than monolinguals both in terms of cerebral lateralization for language and in acquiring skills for linguistic abstraction. Bilinguals have better developed auditory language skills than monolinguals, but there is no clear evidence that they differ from monolinguals in written skills. (p. 248)

These findings are not at all surprising when one considers that bilingual children have been exposed to considerably more "training" in analyzing and interpreting language than monolingual children.

The greater analytic orientation to language of bilingual children is consistent with the view of Vigotskiĭ (1962), who argues that being able to express the same thought in different languages will enable the child to "see his language as one particular system among many, to view its phenomena under more general categories, and this leads to awareness of his linguistic operations" (p. 110). Lambert and Tucker (1972) argued that a similar process was likely to operate among children in bilingual programs. They suggested that, as children develop high level bilingual skills, they are likely to practice a form of "incipient contrastive linguistics" by comparing the syntax and vocabulary of their two languages.

How do we resolve the apparent inconsistency that bilingualism is associated with both positive and negative cognitive and academic effects? An analysis of the characteristics of subjects in these two types of studies suggests that the level of bilingualism children attain is an important factor in mediating the effects of bilingualism on their educational development (Cummins, 1979b). Specifically, a large majority of the "negative" studies were carried out with language minority children whose L1 was gradually being replaced by a more dominant and prestigious L2. Under these conditions, these children developed relatively low levels of academic proficiency in both languages. In contrast, the majority of studies that have reported cognitive advantages associated with bilingualism have involved students whose L1 proficiency has continued to develop while L2 is being acquired. Consequently, these students have been characterized by relatively high levels of proficiency in both languages.

These data have led to the hypothesis that there may be threshold levels of linguistic proficiency bilingual children must attain in order to avoid cognitive deficits and allow the potentially beneficial aspects of becoming bilingual to influence cognitive growth. The Threshold Hypothesis assumes that those aspects of bilingualism that might positively influence cognitive growth are unlikely to come into effect until children have attained a certain minimum or threshold level of proficiency in the second language. Similarly, if bilingual children attain only a very low level of proficiency in one or both of their languages, their interaction with the environment through these languages both in terms of input and output, is likely to be impoverished.

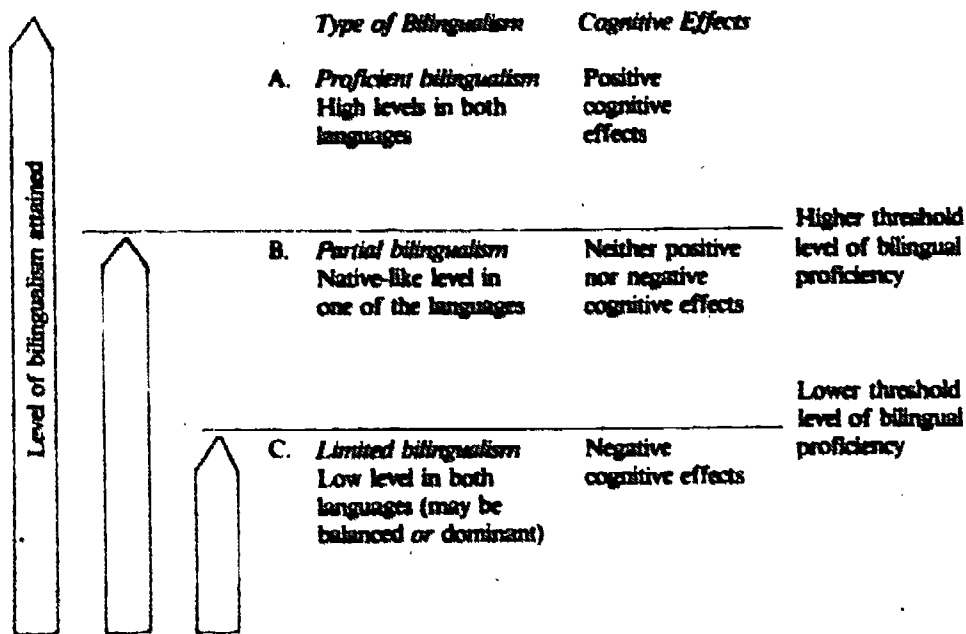
The form of the Threshold Hypothesis that seems to be most consistent with the available data is that there are two thresholds (Cummins, 1976; Toukomaa and Skutnabb-Kangas, 1977). The attainment of a lower threshold level of bilingual proficiency would be sufficient to avoid

any negative cognitive effects; but the attainment of a second, higher level of bilingual proficiency might be necessary to lead to accelerated cognitive growth. The Threshold Hypothesis is illustrated in Figure 8.

Since this hypothesis was originally formulated (Cummins, 1976), several studies have reported findings consistent with its general tenets (Cummins and Mulcahy, 1978; Duncan and DeAvila, 1979; Kessler and Quinn, 1980). Duncan and DeAvila (1979), for example, found that language minority students who had developed high levels of L1 and L2 proficiency (proficient bilinguals) performed significantly better than monolinguals and other sub-groups of bilinguals (partial and limited bilinguals) on a battery of cognitive tasks. Kessler and Quinn (1980) found that Hispanic bilingual students who had been in a bilingual program performed significantly better than monolinguals on a science problem-solving task, while Cummins and Mulcahy (1978) found that Ukrainian-English bilingual students who spoke Ukrainian at home and received 50 percent instruction through Ukrainian were better able to detect ambiguities in English sentence structure than were monolingual English-speaking students.

Figure 8

COGNITIVE EFFECTS OF DIFFERENT TYPES OF BILINGUALISM*



*Adapted from Toukoma and Skutnabb-Kangas, 1977, p. 29.

In summary, far from impeding English language and general academic skills development, as the SUP model would predict, bilingual instruction appears to offer students a potentially enriching educational environment. For language minority students, this potential appears to be realized only when their L1 continues to develop as they are acquiring L2.

Application of Theoretical Analysis to Bilingual Education

In this section, the implications for bilingual education of the research and theory outlined earlier will be made explicit. The four major implications relate to the rationale for bilingual education, entry criteria, reclassification and exit criteria, and assessment considerations.

The Rationale for Bilingual Education

The failure of L2-only programs to promote L2 literacy skills effectively among some groups of language minority children was interpreted by many academics as support for the hypothesis that mismatch between the language of home and language of school is a major cause of academic retardation among minority children (Downing, 1978; UNESCO, 1953; United States Commission on Civil Rights, 1975). This Linguistic Mismatch Hypothesis is exemplified in the well-known UNESCO statement that "it is axiomatic that the best medium for teaching a child is his mother tongue" (UNESCO, 1953, p. 11).

The Linguistic Mismatch Hypothesis has come to be the main theoretical rationale for bilingual education in the United States. This is unfortunate because it greatly over-simplifies the complexity of the issues and as a general principle has little validity. The success of majority language students in French immersion programs and of some minority children in L2-only programs show clearly that "linguistic mismatch" has limited explanatory power.

The transitional form of bilingual education operating in most states derives directly from the linguistic mismatch hypothesis. The focus on *initial* mismatch between the "visible" surface forms of L1 and L2 implies that children can be switched to an English-only program when they have acquired basic fluency in English. Thus, in most transitional programs, the role of L1 instruction in developing English academic proficiency is inadequately understood. L1 is viewed only as an interim carrier of subject matter content until L2 can take over, rather than as the means through which children "negotiate meaning" with significant adults in their world, thereby laying the foundation for overall academic and cognitive development.

There are several major differences between the linguistic mismatch rationale and that developed in this paper. First, the present rationale

emphasizes the sociocultural determinants of minority students' academic difficulties. A major reason for the success of quality bilingual programs is that they encourage minority students (and probably the minority community) to take pride in their cultural background. A program that continues to promote students' L1 throughout elementary school is much more likely to reinforce children's cultural identity than one that aims to remove children as quickly as possible from any contact with, or use of, L1 in school.

A second way in which the present rationale differs from the linguistic mismatch rationale is that it takes account of the difference between context-embedded and context-reduced communicative proficiency. The linguistic mismatch rationale leaves undefined the nature of the "English proficiency" required to survive in an all-English classroom; but by default, relatively superficial aspects of context-embedded communicative proficiency have usually been regarded as adequate. This assumption ignores the fact that it takes L2 learners considerably longer to achieve grade-appropriate levels of L2 context-reduced communicative proficiency than it does to achieve peer-appropriate levels of face-to-face context-embedded communicative proficiency. Thus, the present analysis suggests that a realistic reclassification threshold of "English proficiency" is unlikely to be attained by most language minority students until the later grades of elementary school.

A third difference between the linguistic mismatch rationale and that developed in this paper relates to the role assigned to minority students' L1 proficiency in the acquisition of English academic skills. Instruction through L1 is regarded as much more than an interim carrier of subject matter content; rather, it is the means through which the conceptual and communicative proficiency that underlies *both* L1 and English literacy is developed. The elaboration of the CUP model provides a rationale for continuing the promotion of L1 literacy development throughout elementary school as a means of simultaneously contributing to the development of both English and L1 literacy skills.

A fourth difference is the fact that, unlike the linguistic mismatch rationale, the present rationale emphasizes the additional cognitive and linguistic advantages (beyond the obvious advantage of being bilingual) that research suggests are associated with the attainment of proficient bilingual skills.

Finally, within the present framework, the language spoken by the child in the home is, in itself, essentially irrelevant. What should be much more important in determining the response of the school are the sociocultural characteristics and overall level of communicative proficiency of children on entry. The school program should in every case at-

tempt to build on (rather than replace) the entry characteristics of children.

Who Should Enter Bilingual Programs?

The research evidence reviewed above strongly suggests that programs that aim to develop a high level of proficiency in two languages provide greater potential for academic development for *all* children than education through the medium of only one language. Whether or not this greater potential is realized in any particular bilingual program will, of course, depend on the quality of the program. Research has failed to identify any category of student for whom a bilingual education would be less suitable than a monolingual education. This issue has been extensively researched in Canada in the context of French/English bilingual programs. Students with learning disabilities, low academic ability, and non-English or non-French home backgrounds have all been found to perform at least as well in French/English bilingual programs as equivalent students in English-only programs (Cummins, 1980b). In other words, the enrichment potential of bilingual education is accessible to all students.

This conclusion is also clearly supported by the recent large-scale evaluation of bilingual education programs in the state of Colorado (Egan and Goldsmith, 1981), which found that students from English language backgrounds gained just as much from bilingual education as "linguistically different" students. Both groups of students are reported to have made significant gains in bilingual programs compared to what would have been expected in regular English programs. For language minority students who fail in L2-only school programs, bilingual education offers a very basic form of enrichment, i.e., the possibility of educational survival.

There has been considerable debate in recent years about which categories of language minority students should enter bilingual programs. Much of this debate has been political in nature and only Dulay and Burt (1980) have advanced any serious educational argument in favor of limiting access to bilingual education by Limited English Proficient (LEP) students. Arguing on the basis of the Linguistic Mismatch Hypothesis, Dulay and Burt suggest that "English-superior" LEP students should receive instruction primarily through English, "primary-language superior" LEP students should receive bilingual education, while "limited balanced" (i.e., equally limited in L1 and L2) students should be taught through whichever language is spoken at home. The analysis and research reviewed in this paper shows that this suggestion has no educational support, either empirical or theoretical.

Reclassification and Exiting Considerations

It should be clear by now that there is no educational justification for exiting students from a successful bilingual program. The CUP model provides an interpretation of why students in bilingual programs perform well in English academic skills despite much less instruction through English. Furthermore, many studies show cognitive and academic advantages as a result of attaining literacy and fluency in two languages. Exiting students from bilingual programs in the early grades of elementary school is likely to short-circuit these academic advantages; the rationale for a quick-exit policy is either socio-political in nature or else based on an ill-conceived SUP model of bilingual proficiency.

It is instructive to examine the confused logic of transitional bilingual education as currently practiced in many school districts. Minority students in transitional programs are expected to make so much progress in the cognitive and academic skills underlying English literacy in the early grades that after two or three years they should be able to compete on an equal footing with their monolingual English-speaking peers. In other words, a CUP model of bilingual proficiency is implicitly endorsed in the early grades. Yet proponents of a quick-exit policy revert to a SUP model by assuming (contrary to their earlier assumption and the research data) that children's English skills will not develop adequately unless they are mainstreamed as soon as possible to an English-only program. It is ironic that the earlier they want the child mainstreamed, the more effective they must assume the L1 instruction to have been in promoting L2 proficiency (Cummins, 1980d).

Assessment Considerations

The lack of a theoretical framework that would allow the relationship between "communicative competence" and academic achievement to be considered is especially obvious in the confusion surrounding appropriate ways of assessing language proficiency and dominance for entry and exit purposes in bilingual education. Some measures are intended specifically *not* to relate to academic achievement [e.g., the *Bilingual Syntax Measure* (Burt *et al.*, 1975)], while others are intended to show a moderate relationship [e.g., the *Language Assessment Scales* (DeAvila and Duncan, 1976)].

Given that the purpose of language proficiency assessment is *placement* of students in classes taught through the language which, it is assumed, will best promote the development of academic skills, it is imperative that the test have predictive validity for academic achievement. In other words, the test must assess aspects of language proficiency related to the development of literacy. If it does not, then its relevance to

the placement of bilingual students is highly questionable (Cummins, 1980b).

For entry at the kindergarten level, assessment should probably involve cognitively demanding context-embedded measures, while for exit purposes, cognitively demanding context-reduced measures should be used (see Figure 3). The rationale for this suggestion is that context-embedded measures are necessary to reflect children's pre-school language experiences, but context-reduced measures are more appropriate for reclassification purposes because they more accurately reflect the communicative demands of an all-English classroom.

Conclusion

Although further research is required to specify in detail what constitutes "sufficient" English proficiency for reclassification purposes, there is considerable evidence regarding conditions necessary for English literacy development among students traditionally performing poorly in English-only school programs. The research suggests that achievement in English literacy skills is strongly related to the extent of development of L1 literacy skills. Thus, rather than reclassifying and exiting minority students as soon as possible, teachers and administrators should be concerned with providing students with sufficient time in the bilingual program to develop "threshold" levels of biliteracy.

How much time is sufficient? The evidence reviewed earlier suggests that school districts should aim to provide at least 50 percent of instruction in the early grades through the child's L1, and instruction in and through the L1 should be continued throughout elementary school. Although there are no exact formulas as to how much L1 and L2 instruction ought to be provided at any particular grade level, it seems reasonable to suggest that it would be appropriate to provide more English input in school in situations where exposure to English outside school is limited. However, this increased exposure should *not* come in the early grades where the instructional emphasis should be on L1 in order to develop the conceptual apparatus required to make English context-reduced input comprehensible. Where there is little or no exposure to English outside school, between 50 and 75 percent of the instructional time could be through English from third grade.

It is critically important, however, that decisions made by teachers, administrators, and policy-makers regarding bilingual education take account of the nature of language proficiency and its cross-lingual dimensions. The rationale for bilingual education and the specific program suggestions made in this paper and others in this volume can be appreciated only when it is realized that context-reduced communicative

proficiency is different from context-embedded communicative proficiency and that most academically important aspects of L1 and L2 proficiency are manifestations of the same underlying dimension.

REFERENCES

- Albert, Martin L., and Lorraine K. Obler. *The Bilingual Brain*. New York: Academic Press, 1978.
- Anderson, James G., and William H. Johnson. "Stability and Change Among Three Generations of Mexican-Americans: Factors Affecting Achievement," *American Educational Research Journal*, VIII, No. 2 (March, 1971), 285-309.
- Baral, David P. "Academic Achievement of Recent Immigrants from Mexico," *NABE Journal*, III (1979), 1-13.
- Berciter, Carl, and Marlene Scardamalia. "Does Learning to Write Have to Be So Difficult?" Unpublished manuscript. Ontario Institute for Studies in Education, 1980.
- _____, and _____. "From Conversation to Composition: The Role of Instruction in a Developmental Process," *Advances in Instructional Psychology*, ed. Robert Glaser. Vol. 2. Hillsdale, New Jersey: Lawrence Erlbaum Associates, 1981.
- Bethell, Tom. "Against Bilingual Education: Why Johnny Can't Speak English," *Harper's*, CCLVIII, (February, 1979), 30-33.
- Bhatnager, Joti. "Linguistic Behavior and Adjustment of Immigrant Children in French and English Schools in Montreal," *International Journal of Applied Psychology*, XXIX (1980), 141-158.
- Bruner, Jerome Seymour. "Language as an Instrument of Thought," *Problems of Language and Learning*, ed. A. Davies. London, England. Heinmann, 1975.
- Burt, Marina K., Heidi C. Dulay, and Eduardo Hernandez-Chavez. *Bilingual Syntax Measure (BSM)*. New York: The Psychological Corporation, 1975.
- Canale, Michael. "From Communicative Competence to Communicative Language Pedagogy," *Language and Communication*, eds., J. Richard, and R. Schmidt. New York: Longman, 1981.
- _____, and Merrill Swain. "Theoretical Bases of Communicative Approaches to Second Language Teaching and Testing," *Applied Linguistics*, I (1980), 1-47.
- Caramazza, Alfonso, and Isabel Brones. "Semantic Classification By Bilinguals," *Canadian Journal of Psychology*, XXXIV, No. 1 (March, 1980), 77-81.
- Carey, Steven T., and James Cummins. "English and French Achievement of Grade 5 Children from English, French and Mixed French-English Home Backgrounds Attending the Edmonton Separate School System English-French Immersion Program." Report submitted to the Edmonton Separate School System, 1979.
- Cartér, Thomas P. *Mexican-Americans in School: A History of Educational Neglect*. New York: College Entrance Examination Board, 1970.
- Chesarek, Steve. "Cognitive Consequences of Home or School Education in a Limited Second Language: A Case Study in the Crow Indian Bilingual Community." Paper presented at the Language Proficiency Assessment Symposium, Airfie House, Virginia, March, 1981.
- Chomsky, Carol. "Stages in Language Development and Reading Exposure," *Harvard Educational Review*, XLII, No. 1 (February, 1972), 1-32.
- Chu-Chang, Mae. "The Dependency Relation Between Oral Language and Reading in Bilingual Education," *Journal of Education*, CLXIII (1981), 30-57.
- Cummins, James. "Age on Arrival and Immigrant Second Language Learning in Canada: A Reassessment." *Applied Linguistics*, II, No. 2 (1981), 132-149.

- _____. "Cognitive/Academic Language Proficiency, Linguistic Interdependence, the Optimal Age Question and Some Other Matters," *Working Papers on Bilingualism*, No. 19 (1979a).
- _____. "The Cross-Lingual Dimensions of Language Proficiency: Implications for Bilingual Education and the Optimal Age Issue," *TESOL Quarterly*, XIV, No. 2 (June, 1980a), 175-187.
- _____. "The Exit and Entry Fallacy in Bilingual Education," *NABE Journal*, IV (1980d), 25-60.
- _____. "The Influence of Bilingualism on Cognitive Growth: A Synthesis of Research Findings and Explanatory Hypothesis," *Working Papers on Bilingualism*, No. 9 (1976), 1-43.
- _____. "Language Proficiency, Biliteracy, and French Immersion," *Canadian Journal of Education*, in press.
- _____. "Linguistic Interdependence and the Educational Development of Bilingual Children," *Bilingual Education Paper Series*, Vol. 3, No. 2. Los Angeles, California: National Dissemination and Assessment Center, California State University, Los Angeles, September, 1979b.
- _____. "Psychological Assessment of Immigrant Children: Logic or Intuition?" *Journal of Multilingual and Multicultural Development*, 1 (1980c), 97-111.
- _____, and Robert Mulcahy. "Orientation to Language in Ukrainian-English Bilingual Children," *Child Development*, XLIX, No. 4 (December, 1978), 1,239-1,242.
- _____, Merrill Swain, Kazuko Nakajima, Jean Handscombe, and Daina Green. "Linguistic Interdependence Among Japanese Immigrant Students." Paper presented at the Language Proficiency Assessment Symposium, Airlie House, Virginia, March, 1981.
- Darcy, Natalie T. "A Review of the Literature on the Effects of Bilingualism Upon the Measurement of Intelligence," *Journal of Genetic Psychology*, LXXXII (March, 1933), 21-57.
- DeAvila, Edward A., and Sharon E. Duncan. *Language Assessment Scales (LAS)*. Corte Madera, California: Linguametrics Group, 1976.
- Donaldson, Margaret. *Children's Minds*. Glasgow: Collins, 1978.
- Downing, John. "Strategies of Bilingual Teaching," *International Review of Education*, XXIV, No. 3 (1978), 329-346.
- Dubay, Heidi C., and Marina K. Burt. "The Relative Proficiency of Limited English Proficient Students," *NABE Journal*, IV (1980), 1-23.
- Duncan, Sharon E., and Edward A. DeAvila. "Bilingualism and Cognition: Some Recent Findings," *NABE Journal*, IV (1979), 15-50.
- Edmonton Public School Board. "Evaluation of the Bilingual (English-Ukrainian) Program, Fifth Year." Research report. 1979.
- Egan, Lawrence A. "Bilingual Education: A Challenge for the Future," *NABE News*, (March, 1981).
- _____, and Ross Goldsmith. "Bilingual-Bicultural Education: The Colorado Success Story," *NABE News*, (January 1981).
- Ekstrand, Lars Henri. "Social and Individual Frame Factors in L2 Learning: Comparative Aspects," *Papers from the First Nordic Conference on Bilingualism*, ed., Tove Skutnabb-Kangas. Helsinki, Finland: Helsingfors Universitetet, 1977.
- Enriquez, Miguel. "Semantic Integration in Bilingual Language Processing." Paper presented at the Summer Institute on Bilingual Education, University of Arizona, 1980.
- Evaluation Associates. "Nestor School Bilingual Education Program Evaluation." Unpublished research report, San Diego, California, 1978.

- Fillmore, Lily Wong. "Individual Differences in Second Language Acquisition," *Individual Differences in Language Ability and Language Behavior*, eds., Charles J. Fillmore, Daniel Kempler, and William S-Y. Wang. New York: Academic Press, 1979, pp. 203-228.
- Fischer, K. B., and B. Cabello. "Predicting Student Success Following Transition from Bilingual Programs." Paper presented at AERA Meeting, Toronto, Canada. Los Angeles: University of California, Los Angeles, Center for the Study of Evaluation, 1978.
- Genesee, Fred. "Is There an Optimal Age for Starting Second Language Instruction?" *McGill Journal of Education*, XIII (1978), 145-154.
- Hanson, Göte. "The Position of the Second Generation of Finnish Immigrants in Sweden: The Importance of Education in the Home Language to the Welfare of Second Generation Immigrants." Paper presented at a symposium on the position of the second generation of Yugoslav immigrants in Sweden, Split, Yugoslavia, October, 1979.
- Hébert, Raymond et al. *Rendement Academique et Langue D'enseignement chez les Elèves Franco-Manitobains*. Saint Boniface, Manitoba: Centre de Recherches du Collège Universitaire de Saint-Boniface, 1976.
- Hernandez-Chavez, Eduardo, Marina K. Burt, and Heidi C. Dulay. "Language Dominance and Proficiency Testing: Some General Considerations," *NABE Journal*, III (1978), 41-54.
- Heyman, Anna-Gretta. *Invandrarbarn: Slutrapport*. Stockholm, Sweden: Stockholms Invandrarnamd, 1973.
- Jensen, J. Vernon. "Effects of Childhood Bilingualism, I," *Elementary English*, XXXIX (February, 1962), 132-143.
- Kessler, Carolyn, and Mary Ellen Quinn. "Positive Effects of Bilingualism on Science Problem-Solving Abilities," *31st Annual Georgetown University Round Table on Languages and Linguistics*, ed., James E. Aistis. Washington, D.C.: Georgetown University Press, 1980, pp. 295-308.
- Kimball, W. J. "Parental and Family Influences on Academic Achievement Among Mexican-American Students." Unpublished PhD dissertation, University of California at Los Angeles, 1968.
- Kolers, Paul A. "Bilingualism and Information Processing," *Scientific American*, CCXVII, No. 3 (March, 1968), 78-86.
- Krashen, Stephen D. "Bilingual Education and Second Language Acquisition Theory," *Schooling and Language Minority Students: A Theoretical Framework*. Los Angeles, California: Evaluation, Dissemination and Assessment Center, California State University, Los Angeles, 1981.
- _____, Michael A. Long, and Robin C. Scarcella. "Age, Rate and Eventual Attainment in Second Language Acquisition." *TESOL Quarterly*, XIII, No. 4 (December, 1979), 573-582.
- Lambert, Wallace E., and G. Richard Tucker. *Bilingual Education of Children: The St. Lambert Experiment*. Rowley, Massachusetts: Newbury House, 1972.
- Landry, Rodrigue J. "Apprentissage dans des Contextes Bilingues." Unpublished research report. University of Moncton, New Brunswick, Canada, 1980.
- _____. "Le Bilinguisme: Le Facteur Répétition," *Canadian Modern Language Review*, XXXIV (1978), 548-576.
- Legarreta, Dorothy. "The Effects of Program Models on Language Acquisition by Spanish Speaking Children," *TESOL Quarterly*, XIII, No. 4 (December, 1979), 521-534.

- Leyba, Charles F. *Longitudinal Study, Title VII Bilingual Program, Santa Fe Public Schools, Santa Fe, New Mexico*. Los Angeles, California: National Dissemination and Assessment Center, California State University, Los Angeles, 1978.
- Macnamara, John. "Bilingualism and Thought," *21st Annual Round Table on Languages and Linguistics, 1970*, ed., James E. Alatis. Washington, D.C.: Georgetown University Press, 1970, pp. 25-45.
- McCormack, Peter D. "Bilingual Linguistic Memory: Independence or Interdependence?" *Bilingualism, Biculturalism and Education*, ed., S. T. Carey. Edmonton, Alberta, Canada: University of Alberta Press, 1974.
- Mercer, Jane R. *Labeling the Mentally Retarded: Clinical and Social System Perspectives on Mental Retardation*. Berkeley, California: University of California Press, 1973.
- Oller, John W., Jr. "The Language Factor in the Evaluation of Bilingual Education," *Georgetown University Round Table on Languages and Linguistics 1978*, ed., James E. Alatis. Washington, D.C.: Georgetown University Press, 1978, pp. 410-422.
- _____. *Language Tests at School: A Pragmatic Approach*. New York: Longman, 1979.
- Olson, David R. "From Utterance to Text: The Bias of Language in Speech and Writing," *Harvard Educational Review*, XLVII, No. 3 (August, 1977), 257-281.
- Ramirez, Arnulfo G., and Robert L. Politzer. "The Acquisition of English and Maintenance of Spanish in a Bilingual Education Program," *English as a Second Language in Bilingual Education*, eds., James E. Alatis, and K. Twaddell. Washington, D. C.: TESOL, 1976.
- Ramsey, Craig A., and Edward N. Wright. "A Group, English Language Vocabulary Knowledge Test Derived from the Anonymous Full-Range Picture Vocabulary Test," *Psychological Reports*, XXXI (1972), 103-109.
- Rosier, Paul, and Marilyn Farella. "Bilingual Education at Rock Point—Some Early Results," *TESOL Quarterly*, X, No. 4 (December, 1976), 379-388.
- Shuy, Roger W. "How Misconceptions About Language Affect Judgments About Intelligence," *Issues in Evaluating Reading*, ed., S. F. Wanat. Arlington, Virginia: Center for Applied Linguistics, 1977.
- Singer, Harry. "IQ Is and Is Not Related to Reading," *Issues in Evaluating Reading*, ed., S. F. Wanat. Arlington, Virginia: Center for Applied Linguistics, 1977.
- Skutnabb-Kangas, Tove, and Pertti Toukoma. *Teaching Migrant Children's Mother Tongue and Learning the Language of the Host Country in the Context of the Socio-Cultural Situation of the Migrant Family*. Helsinki: The Finnish National Commission for UNESCO, 1976.
- Smith, Frank. *Understanding Reading: A Psycholinguistic Analysis of Reading and Learning to Read*. New York: Holt, Rinehart and Winston, 1978.
- Swain, Merrill. "French Immersion: Early, Late or Partial?" *The Canadian Modern Language Review*, ed., S. T. Carey, XXXIV (May, 1978), 577-585.
- Tannen, Deborah. "Implications of the Oral/Literate Continuum for Cross-Cultural Communication," *Georgetown University Round Table on Languages and Linguistics, 1980*, ed., James E. Alatis. Washington, D.C.: Georgetown University Press, 1980.
- Terrell, Tracy D. "The Natural Approach in Bilingual Education," *Schooling and Language Minority Students: A Theoretical Framework*. Los Angeles, California: Evaluation, Dissemination and Assessment Center, California State University, Los Angeles, 1981.
- Toukoma, Pertti, and Tove Skutnabb-Kangas. *The Intensive Teaching of the Mother Tongue to Migrant Children of Preschool Age and Children in the Lower Level of Comprehensive School*. Research Reports 26. Tampere: Department of Sociology and Social Psychology, University of Tampere, Finland, 1977.

- Troike, Rudolph C. "Research Evidence for the Effectiveness of Bilingual Education," *Bilingual Education Paper Series*, Vol. 2, No. 5. Los Angeles, California: National Dissemination and Assessment Center, California State University, Los Angeles, December, 1978.
- Trombley, William. "Is Bilingual Education Able to Do Its Job?" *Los Angeles Times*, September 4, 1980.
- UNESCO. *The Use of Vernacular Languages in Education*. Monographs of fundamental education. No. 8. Paris: UNESCO, 1953.
- United States Commission on Civil Rights. *A Better Chance to Learn: Bilingual Bicultural Education*. Clearinghouse Publication No. 51. Washington, D.C.: Government Printing Office, 1975.
- Vygotskii, Lev Semonovich. *Thought and Language*. Cambridge, Massachusetts: M.I.T. Press, 1962.
- Wells, Gordon. "Describing Children's Linguistic Development at Home and at School," *British Educational Research Journal*, V (1979), 75-89.
- Yee, Leland Y., and Rolfe La Forge. "Relationship Between Mental Abilities, Social Class, and Exposure to English in Chinese Fourth Graders," *Journal of Educational Psychology*, LXVI, No. 6 (December, 1974), 826-834.