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ABSTRACT

The results of four recent studies that contain different estimates of the number of language minority and/or limited English proficient children in the United States are compared. Such estimates of the number of children in need of bilingual or special educational language services are important since they are used to determine services and their associated costs as well as to predict the impact of proposed educational guidelines and resolutions at federal and state levels. The four studies are O'Malley, 1981; Oxford, et al., 1981; Barnes and Milne, 1981; and Milne and Gombert, 1981. Reviews of the various reports reveal at least four major reasons why the results differ: (1) the purposes underlying the estimates vary, (2) definitions of target populations differ, (3) methodologies used to determine language minority or limited English status differ, and (4) underlying data bases vary. The problems involved in defining, measuring, and estimating language minority, limited and/or English proficient children are highlighted. It is concluded that the numbers produced by these studies do not necessarily contradict each other. Each study should be interpreted within the appropriate legislative and educational context. (RW)

LIMITED-ENGLISH PROFICIENT STUDENTS: A REVIEW OF NATIONAL ESTIMATES

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Contents

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This document addresses wide spread concerns about estimating language minority and limited-English proficient students. A dozen articles and books have been published in the last several years on the topic and a workshop on the subject was held at the National Institute of Education, Washington, DC, in August of 1981. I would like to thank all of the participants of the workshop for their insights and reviews, particularly Rebecca Oxford, Paul Stupp, and Michael O'Malley for their written comments on an earlier draft of this report. I would also like to thank the staff of the National Center for Bilingual Research, Dr. Reynaldo Macias of the University of Southern California, Dr. Mary Spencer of Americas Behavioral Research Corporation, and staff of the National Institute of Education, Reading and Language Studies Division, for their important comments and assistance. This document was spurred by an earlier, preliminary draft written by Spencer and a larger volume by Macias and Spencer, to be published by the National Center for Bilingual Research. Views and opinions expressed in this document remain mine and do not necessarily reflect those of the institutions or persons which have provided support and review.

SUMMARY

Estimating the number of children in need of bilingual or special educational language services is an essential prerequisite for determining services and their associated costs and for predicting the impact of proposed educational guidelines and regulations at federal and state levels. Current attempts at estimating the school-age population in need of bilingual or special English instruction produce disparate results which range from 3.8 million to less than 1 million.

The purpose of this review is to identify the reasons for the difference between estimates so that non-technical users can decide in a more informed way which approach, and therefore which estimate, is most appropriate for their circumstances.

The review examines four recent studies which contain estimates of the number of language minority and/or limited-English proficient children according to various definitions, as reported in the following publications:

1. O'Malley, J. M. Children's English and Services Study: Language Minority Children with Limited-English Proficiency in the United States. Rosslyn, VA: National Clearinghouse for Bilingual Education, 1981.

2. Oxford, R., et al., Executive Summary--Contract Report: Projections of Non-English Language Background and Limited-English Proficient Persons in the U.S. to the Year 2000. Washington, DC: National Center for Education Statistics, February, 1981 (NCES 81-110).

3. Barnes, R., & Milne, A., The Size of the Eligible Language Minority Population, (Draft Final Report). Washington, DC: Office of Planning, Budget, and Evaluation, U.S. Department of Education, September, 1981.

4. Milne, A., & Gombert, J., Students with a Primary Language Other Than English: Distribution and Service Rates (Final Report under Education Department Contract No. 300-80-0778, Task Order 4). Washington, DC: AUI Policy Research, March, 1981.

Review of these reports reveals at least four major reasons why the estimates differ:

1. The purposes underlying the estimates varied;

2. Definitions of the target populations differed;

3. Methodologies employed to determine language minority or limited-English status differed; and

4. Underlying data bases varied.

It is the conclusion of this review that the numbers produced by the different studies do not necessarily contradict each other since the surveys on which they were based estimated the size of various populations under different definitions of need. Thus, accepting an estimate and using it to plan educational services means that different children will be effectively included or excluded from services programs. Therefore, each study (and its associated estimate) should be interpreted within the appropriate legislative and educational context and with an understanding of the constraints resulting from the purposes for which it was designed.

I. INTRODUCTION

Estimates of the number of children in need of bilingual or special educational language services are used to determine services and their associated costs and to predict the impact of proposed educational guidelines and regulations at federal and state levels. In planning resources for programs to meet the educational needs of language minority children, the federal government has recognized the need for adequate descriptive information on the size and characteristics of the language minority,[1] limited-English proficient (LEP)[2] school age and adult populations.

Current estimates of the school age population in need of bilingual or special English instruction range from 3.8 million to less than 1 million. The purpose of this review is to identify the reasons for the difference between estimates so that non-technical users can decide in a more informed way which approach, and therefore which estimate, is most appropriate for their circumstances.

There are four recent studies which report estimates of the number of language minority and/or limited-English proficient children according to various definitions:

1. O'Malley, J. M., Children's English and Services Study: Language Minority Children with Limited-English Proficiency in the United States. Rosslyn, VA: National Clearinghouse for Bilingual Education, 1981.

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[1] We will use 'language minority' as the generic reference term.

[2] Since it is problematic to select a term which includes the terms and definitions by which we refer to the eligible or target population, we will purposefully use 'limited-English proficient' as the generic referent as per popular usage but we will be specific with regards to the definitions in appropriate sections.

2. Oxford, R., et al. Executive Summary--Contract Report: Projections of Non-English Language Background and Limited-English Proficient Persons in the U.S. to the Year 2000. Washington, DC: National Center for Education Statistics, February, 1981 (NCES 81-110).

3. Barnes, R., & Milne, A. The Size of the Eligible Language Minority Population, (Draft Final Report). Washington, DC: Office of Planning, Budget, and Evaluation, U.S. Department of Education, September, 1981.

4. Milne, A., & Gombert, J. Students with a Primary Language Other Than English: Distribution and Service Rates (Final Report under Education Department Contract No. 300-80-0778, Task Order 4). Washington, DC: AUI Policy Research, March, 1981.

The first two reports (O'Malley, 1981; and Oxford et al., 1981) were part of a coordinated effort on the part of the U.S. Department of Education to respond to the legislatively mandated count of limited-English proficient school age children and adults found in programs funded by Title VII of the Elementary and Secondary Education Act (ESEA Title VII, the Bilingual Education Act). Since these studies are related in purpose and primarily rely on the same planned sequence of data sources, their estimates do not differ significantly. Estimates recently reported to Congress by the U.S. Department of Education (1982) were based on this series of reports. The studies were conducted in the following order:

1. Children's English and Services Study (CESS), 1978 (O'Malley);
2. Projections of the Non-English Language Background and Limited English Proficient Persons in the U.S. to the Year 2000, 1981 (Oxford et al.).

The Barnes and Milne (1981) study and the Milne and Gombert (1981) study were undertaken for the same regulatory review. They were performed independently in that they are not methodologically or developmentally related, as were the Title VII studies. The Milne and Gombert study gives an estimate of the number and distribution of

children with a Primary Language Other Than English (PLOTE) in the United States, rather than those with limited-English proficiency, using the 1978 survey data compiled by the Office of Civil Rights. This study was to determine the number of children eligible for services, the number already being served, and the distribution of those children in the country, in order to assess the impact and costs of proposed federal regulations. The study was one of several to be carried out under a U.S. Department of Education management plan for information and analysis in issuing a proposed Civil Rights rule prohibiting discrimination of language minority students (U.S. Department of Education, 1980).

The Barnes and Milne study, which was originally intended to examine the cost and service requirements under the above-mentioned proposed federal rule, but which was later revised for use in the formulation of recent amendments to Title VII itself, presents estimates of the size of the eligible student population under alternative definitions of limited-English proficiency. The later, revised version (September, 1981) is reviewed here.

Review of the various reports estimating the number of language minority limited-English proficient children reveals at least four major reasons why the studies differ:

1. The purposes underlying the estimates vary;
2. Definitions of the target populations differ;
3. Methodologies employed to determine language minority or limited-English status differ; and
4. Underlying data bases vary.

The following represent the main findings of this review:

- Differences in the estimates produced by the U.S. Department of Education's coordinated Title VII effort and those produced by the proposed Civil Rights rule reports are based on different definitions of the need population, as well as different data bases.

- The Department of Education's estimates defined the limited-English proficient "need" population in terms of a student's ability to benefit from instruction exclusively in English. The other studies defined the "need" population in terms of language dominance.

- The Department of Education's estimates result from studies whose specific purpose was to estimate the number of LEP children for the nation by state, language, and age. The studies obtained a nationally representative sample for this purpose. In contrast, estimates derived from the other studies are based on data sets obtained for other purposes, which did not necessarily include a nationally representative sample of language minority children.

- Estimates produced by the Department of Education's Title VII studies were based on a direct measure of language proficiency, designed specifically to estimate the LEP population and to represent the language skills judged by school officials to be necessary to achieve in an all-English classroom. In contrast, estimates derived from the other data bases relied on survey questions seeking information on the language most often used by the students, whether a non-English language was used in the home, or whether the student received help with homework primarily in the non-English language.

It is the conclusion of this review that the numbers produced by the different studies do not necessarily contradict each other, since the surveys on which they were based estimated the size of the various populations under different definitions of need. However, the estimates produced from the Title VII coordinated effort by the U.S. Department of Education should not be compared with the estimates from the Management Plan studies of the proposed Civil Rights rule since they are based on data sets obtained for different purposes as well as different samples and definitions. Each estimate should be interpreted within the appropriate legislative and educational context and with an

understanding of the constraints resulting from the purposes for which they were designed.

A central issue is the interpretation of the language characteristics which constitute the eligible LEP population. When one accepts a particular number, one also accepts the definition of eligibility, namely the language characteristics of the children that will be identified as eligible or in need. The various definitions and their resulting estimates represent progressively restrictive concepts of language proficiency. Consideration needs to be given to the educational implications of different definitions and consequent characterization of the eligible limited-English proficient population. For example, there are greater conceptual and measurement problems in estimating a population defined on the basis of language dominance rather than on language proficiency.

At the same time, even if one accepts a particular definition for eligibility, one must also consider the sampling and analytic assumptions which lead to the estimate. Thus, even if we were to agree on who the eligible population was, there would be tradeoffs and differences in judgment on the technical aspects of estimating. For example, direct measures and samples are preferable to indirect measures and surrogate samples. When examining estimates of the eligible or need population, both the definitional and statistical sources of the estimate must be identified and kept firmly in mind in selecting and using a particular estimate.

The major concerns are:

1. The definition of the eligible population (i.e., what types of students need special services);

2. The method and assumptions from which the estimates are derived; and

3. The educational impact of using the particular definition (and criteria) for eligibility.

The purpose of this report is to provide the reader with an understanding of the conceptualizations involved in defining, measuring, and estimating language minority, limited-English proficient children. The discussion does not attempt to explain the specific procedures used in each study or report reviewed; rather, we describe only the major steps in estimating the size of the eligible limited-English proficient population. Following the general discussion we examine the major sources of differences between the studies, and discuss the implications for policy and the ultimate delivery of educational services to the students who are in need of these services.

II. DEFINING THE ELIGIBLE POPULATION

Step 1: Identify Children Within the Language Minority Population

There are two major steps involved in estimating the number of children eligible for instructional services based on language needs. The first step is to determine the size of the language minority population (LMP) and within that population the number of LMP children in the United States. The second step is to identify those LMP children who are not able to participate in English-only classrooms because of their limited English proficiency (LEP). Conceptually, the term LMP describes the largest, most comprehensive set of persons who have non-English language characteristics in their background. It is from this population that some subsample of students in need is determined. Thus, only those children who fall within the limits of this first cut will ultimately be considered for possible eligibility for language related services. Each study under review uses a specific terminology which is consistent with the way in which this population was defined for purposes of the study.

The conceptual definition of LMP is directly related to its operational definition, that is, the way LMP is measured. It is in the operational definition that differences can be observed. An LMP child is described as having any of the following characteristics:

1. The child was not born in the United States (born abroad);
2. A language, or languages, other than English is spoken in the child's home (household language(s) other than English);
3. The first language spoken by the child is not English (mother tongue other than English);
4. The child speaks a language or languages other than English (individual language(s) other than English).

Different studies, however, have used all or part of this definition and accordingly use a different terminology to refer to the

conceptual definition of LMP. The operational definitions used vary considerably. The characteristics of LMP students identified by each operational definition produce different characteristics in the language minority population estimates. Being born abroad, having a mother tongue other than English, having a household language other than English and actually speaking a language other than English are different concepts. Also, progressively restrictive definitions are not necessarily concentric. That is, they are not neat subsets of one another. They overlap one another, but they are different nonetheless. For example, using any one of four different LMP concepts based on these variables would include a comprehensive set of possible LEP children. Within each of these definitions (born abroad, mother tongue, household language and individual language), children would be present who are limited in English proficiency and others would be present who are not, but all potential LEP chidren in each of these LMP categories would be included. Using more restrictive concepts of language minority status would exclude some children included in the above mentioned categories.

So we see that language minority status ranges from a broad definition which includes the child's home environment, i.e., the language characteristics of others in the home, to a narrower criterion which focuses on the specific language characteristics of the child. Use of a different definition for LMP results in a different population.

Optimally, the language minority population might include children whose background suggests that they might be limited in English proficiency: Children whose parents or caretakers use (or used) a non-English language in the child's home; childen who in their first few years were reared in a non-English-speaking community, either overseas or in the U.S.; children whose primary language has changed with changes in locale (U.S. and Puerto Rico, for example), and so on. Alternative definitions of LMP may be sensitive to some of these situations and not to others. The goal of the LMP definition is to include as many language minority children as possible who are potentially limited in

English proficiency, without unnecessarily resulting in excessive identification of children who are not likely to be limited in English. Since the ramifications of excluding potentially eligible children are more serious than including children who are not in need, different definitions result in tradeoffs, with reference given to the consequences of over- vs. under-identification.

It is clear that some definitions are more inclusive than others, and that this in itself would produce differences in the number of persons estimated as LMP. Certain definitions may preclude children from identification by excluding them from the initial language population. On the other hand, if it can be shown that a more restrictive definition does not exclude children, but in fact subsumes the targeted eligible population entirely, then one has been successful at reducing the number of children that need to be screened for limited English proficiency.

Finally, it should be pointed out that this particular step involves a survey type question which is either responded to or completed by the school, parent(s) or guardian, or some other adult in the home. Depending upon who the respondent is, additional variation--and error (in an unknown direction)--may be introduced into the estimate, even when the same operational definition is used.

Step 2: Identify Children of Limited English Proficiency

Given the first step (that the general population of language minority children is determined), a second step is necessary to identify the group limited in English proficiency (LEP). This is perhaps the most critical--and certainly the most controversial--point of divergence among both educators and policymakers. The most generic meaning that can be applied to the LEP concept is that language minority children are said to be LEP if they have difficulty "participating effectively" in an English-only classroom, and if this difficulty is due to their limited

proficiency in the English language. The basic concept is that difficulty in understanding instruction in English precludes a child from a fair and reasonable opportunity to (i.e., effective participation in) an education.

As discussed in the previous section, the first step is fairly clear in providing criteria for determining LMP. The identification of LEP children, on the other hand, is much more muddled. For example, Title VII provides a boundary or condition for determining LEP status, namely, that a language-minority child is limited-English proficient if s/he has sufficient difficulty with English so as not to benefit from instruction in an all-English classroom. A precise definition of "sufficient difficulty" is not given; implicit, however, is that inability to benefit from instruction in English is related to difficulty with the language, and that this, in turn, is due to a language background other than English.

Inability to benefit from instruction in English, as a criterion for LEP status, does not address the question of the student's relative language proficiency (i.e., the child's proficiency in English relative to the native language), the child's language dominance, or the child's "limited" proficiency in both languages (cf. Cummins, 1979; Duncan & DeAvila, 1979; and Hayes, 1982).

The U.S. Department of Education's proposed rules (NPRM, 1980) raised questions concerning the special instructional and language needs of LEP students given their relative language proficiency. It has been argued, for example, that the eligible population must not only be limited in English proficiency, but also be dependent on (i.e., dominant in) the non-English language. This raises the issue of the instructional needs of students who are LEP and who have various degrees of native language proficiency: Are all LEP children eligible, i.e., in need of special language related services, or are LEP children who are

more dependent on the non-English language the only ones in need of, and thus eligible for, federally supported services?

The problem of defining limited-English proficiency is further complicated by alternative ways of characterizing children in need of services, and hence by the operational methods used to assess limited English proficiency. Because language proficiency is a highly complex construct, attempts to measure it have taken many forms. Criterion measures of limited-English proficiency have varied depending on the purpose of the study, the interpretation of the characteristics of the LEP population, and the available data sets which could be used to fit the interpretation. In general, alternative operational criteria for determining LEP have taken into account the following factors:

(1) Direct measurement of student's speaking, understanding, reading, and writing abilities in English (O'Malley, 1981; Dubois, 1982).

(2) Surrogate measure of English language proficiency (MELP) derived from survey questionnaire type items (Oxford et al., 1981).

(3) School/teacher ratings of frequency of English language usage (Primary Language Other Than English) (Milne & Gombert, 1981).

(4) Dependence on or dominance in the non-English language and attainment of a reading achievement score below a criterion cutoff score (e.g., 20th or 40th percentiles) (LEP/Primary Language Superior (Barnes & Milne, 1981).

Depending on which of these factors is selected to operationalize the eligible population, some students will be excluded who need the special language services. Table 1 is a summary display of the factors used by each study under review to operationalize the language minority limited-English proficient population.

Table 1

Variables Used in Conceptualizing the Students in the NELB (Non-English Language Background) Pool and Those in Need of Special Language Services

	O'Malley (1981)	Oxford et al. (1981)	Barnes & Milne (1981)	Milne & Gombert (1981)
UNIVERSE				
Total Population	x	x		
Public School Enrollment			x	x
Age Band:				
• 5-14 years	x	x	x	
• 6-18 years/K-12			x	x
Year 1976		x	x	
1978	x		x	x
POOL FACTORS				
Mother Tongue		x		
Household Language 1 (usually used)	x	x	x	
Household Languages 2 (usually used)		x	x	
Individual Language 1 (often used)			x	x
Individual Languages 2 (often used)			x	
National Origin				x
NEED FACTORS				
Direct Measure of English Proficiency				
• Reading	x	(x)		
• Writing	x	(x)		
• Speaking	x	(x)		
• Understanding	x	(x)		
Indirect Measure of English Proficiency				
• Standardized Reading Achievement Test			x	
• Reported Speaking Ability of English		x		
• Reported Understanding Ability of English		x		
• Family Income		x		
Language Dominance				
• Relative Frequency of use			x	x

Source: Adapted from Macias & Spencer, In press.

Summary

In summary, LMP refers to the overall pool of children from which some subset of LEP students will be defined as eligible for special services based on language need. The problem in defining limited-English proficiency is one in which an attempt is made to predict which language minority children are likely to have difficulty with instruction in English-only classrooms, without special language assistance. Although different terminology is used in the studies under review, they are generally referring to these two abstract populations. The way which these two concepts are ultimately defined will be at issue, since the operational procedures will determine resulting estimates of the eligible population, i.e., students in need of special language services.

III. DISCREPANCIES IN ESTIMATES OF LEP POPULATIONS

This section examines the specific ways in which the four estimation studies under review differed, focusing on four major issues:

1. The purposes underlying the estimates;
2. Definitions of the target populations;
3. Methodologies employed to determine LMP or LEP status; and
4. Underlying data bases.

Purposes Underlying Each Estimation Study

The purposes for the studies under review varied in ways that affected definitions, data bases, and methodologies; thus, the estimates cannot be compared as if the underlying goals of the studies were the same. The purposes for conducting the various estimation studies are shown in Table 2.

Two of these studies were related in purpose and relied primarily on the same planned sequence of data sources. These studies (O'Malley, 1981, and Oxford et al., 1981) were part of a systematic attempt mandated by Congress to estimate the number of LEP children requiring special services now and in the future. The children's English and Services Study (O'Malley, 1981) was an attempt to estimate the number of school-aged language minority children who required special language services, specifically because of their limited-English proficiency. Oxford and her colleagues (1981) were charged with developing a methodology to estimate the size of the NELB (Non-English Language Background) LMP and LEP populations in the base year of 1976 and to project these estimates to the year 2000.

Table 2

Purpose for Estimation Studies

Study	Purpose
O'Malley (1981)	1. Estimate the number of language minority children with limited-English proficiency and thus in need of special services. 2. Derive limited-English proficiency rates for selected sub-populations. 3. Develop surrogate measure of English proficiency.
Oxford et al. (1981)	1. Develop base year 1976 estimates of the Language Minority and Limited English Proficient populations by state, language and age. 2. Project these two populations to 1980, 1985, 1990, 1995, and 2000.
Barnes & Milne (1981)	1. Estimate school enrolled language minority population eligible for federal special language educational services. 2. Provide estimates useful for (a) establishing costs of new federal educational rules in involving language minorities, (b) assessment of selected civil rights guarantees; and (c) developing annual appropriation requests to Congress for the Bilingual Education Act.
Milne & Gombert (1981)	1. Estimate distribution and service rates for eligible school population under proposed Lau regulations.

The purpose of the Barnes and Milne (1981) study was, initially, to estimate the size of the eligible language minority population under the proposed rules so that the cost and service requirements could be determined. This study was not conducted as part of the U.S. Department of Education's Title VII *effort*. It differed from the other studies in that it attempted to *explore* alternative definitions of the LMP and LEP populations. Specifically, Barnes and Milne (1981) defined the eligible LEP population by including dependence on a non-English language in addition to limited-English speaking ability as a criterion of LEP status. Barnes and Milne (1981) further specified that their LEP estimate referred to limited-English proficient children who, in their opinion, would benefit from instruction in a non-English language (e.g., bilingual instruction because the student was dependent on a non-English language).

The Milne and Gombert (1981) study was designed to estimate the number of children eligible for services if proposed federal regulations were accepted. This was one of several studies to be carried out under a U.S. Department of Education Management Plan for information and analysis in issuing a proposed rule to replace the Lau Guidelines (U.S. Department of Education, 1980).

Thus, both the Milne and Gombert (1981) and the Barnes and Milne (1981) studies provide estimates of the number of students specifically falling under the proposed rules, and/or specific criteria, rather than estimating all of those who might need any degree of special language educational services. The estimated number of children would be larger or smaller, depending on which of the options in the proposed rules were exercised.

Comparing studies designed to estimate the number of children who need bilingual or special English language services with those designed to estimate the number of children eligible under a specific guideline or regulation and which introduce a different definition can lead to

discrepancies. Given that the purpose of these studies differed, the definitions of the populations, as well as the resulting estimates, differed in predictable ways.

Variations in Definitions of the Target Populations

The studies under review differed in the definitions of the population to be estimated. First, the studies differed in the universe that they defined for investigation. O'Malley (1981) assumed they were estimating from the total population, but limited their analysis to 5 to 14 year olds in 1978. The Oxford et al. (1981) NELB (i.e., LMP) estimates and projections covered all age groups, whereas their LEP estimates and projections covered the 5-14 age band beginning in 1976. Barnes and Milne (1981) and Milne and Gombert (1981) focused their attention on the school population only and dealt with pupils in grades K-12 in 1976 and 1978 respectively. Milne and Gombert used only public school data. The Title VII studies drew estimates from the total population, including public and private school students and children not enrolled in any school, while the last two studies concentrated only on the public school population. Larger estimates are found in the Title VII studies than in the two Civil Rights studies, which were more narrowly drawn. Additionally, since the studies differed in "age bands" (using chronological age vs. grade levels), differences may be expected due to the known over-agedness in grades of Hispanics, although the nature of this effect is not known.

Next, the studies differed in their definition of the language minority pool that would more narrowly define the universe under study. The LMP pool for Oxford et al. (1981) was defined in the same way as the Survey of Income and Education (NCES, 1978), but included individual languages as well as household languages. However, Macias and Spencer (in press) found that this did not produce a difference in result. The LMP pool of students for the CESS (O'Malley, 1981) was defined as "students who lived in homes where a non-English language was used

usually or often," and these specifications held whether or not the child spoke the non-English language. These screens resulted in an estimate of 3.8 million language minority students who, in 1978, were between the ages of five and fourteen (O'Malley, 1981). In contrast, the Barnes and Milne (1981) study determined LMP as those individuals for whom a non-English language was used regularly in the home, regardless of whether English was used regularly or not. The estimate produced by Barnes and Milne was 4.2 million K-12 LMP language minority children in 1976, about 800,000 less than the NCES (1978) estimate for a similar age range, but also including only students in public school programs.

Milne and Gombert (1981) did not really provide a definition or an estimate of the LMP pool. Rather, they used the individual's dominant language as their initial and only screen to arrive at an estimate of the number of school-aged children who were "dependent on a non-English language," regardless of their proficiency in English. This is a narrower definition of language minority status and resulted in a smaller estimate because it excluded individuals who were dominant in English but whose background also included another language, and who may not have been proficient in English. On the other hand, it may have included individuals dominant in their native language but who also spoke English fluently. Milne and Gombert report an estimated 933,828 such children.

Measures and Methods

Once the universe was defined and the language minority population pool was identified, the estimation studies (except for Milne & Gombert, 1981) each established procedures for estimating the number of limited-English proficient children, and/or children in need of special educational language services who were among the language minority population pool.

The Children's English and Services Study (CESS). The CESS (O'Malley, 1981) used a direct measure of English proficiency which included a measure of reading, writing, speaking, and understanding English. This measure, known as the Language Measurement and Assessment Inventories (LM&AI), identified children as LEP on the basis of a critical score of English proficiency.

Representatives from 30 state educational agencies served on an advisory group to develop the test. The test attempted to cover language skills thought to be necessary to succeed in an English-speaking classroom. According to O'Malley (1981):

> The test was domain-referenced for objectives that, in the judgment of the advisory group, children at ages from 5-14 years would be expected to perform in order to profit from instruction in an all-English language educational environment. (p.45)

As such, the test is not a language test in the strict sense, since it tried to capture both the "difficulty in English" and "inability to benefit from instruction in English" elements of the Title VII description of the eligible LEP population. Test items on the LM&AI, however, were selected on the basis of their ability to discriminate between students systematically classified by schools as either LEP or fluent English speakers. Thus, validity of the LM&AI was established on the basis of the test's ability to differentiate between two groups of students: (1) "language minority students with limited English proficiency based on the inability to profit from instruction in English, as reflected in test results or judgments of school personnel," and (2) fluent English speaking children who were native English speakers performing in the normal range of ability and school achievement" (O'Malley, 1981, p. 11).

A critical issue is the extent to which a student's score on the LM&AI reflects achievement as opposed to language characteristics (cf. Dubois, 1980, for a methodological review of the CESS). O'Malley (1981), however, points out that the LM&AI was designed to reflect

English achievement because it is in this domain (since the LM&AI is domain referenced) that limited-English proficiency was intended to be defined. The CESS estimated 2.4 million LEP children (5 to 14 years old) according to this definition, or about 63% of the LMP population screened for proficiency.

A separate estimate, which was a recalculation of the CESS data (O'Malley, 1981), was provided by Dubois (1980) and reflected a different method for determining the critical cutoff score that defined the LEP and non-LEP populations. This exemplifies how different methods can result in different estimates, even when the same data set and same measures are used. Dubois pointed out that the discriminant function procedure employed in the CESS minimizes the total proportion of a sample which is misclassified. This procedure resulted in consistent misclassifications of one group (i.e., LEP) at the expense of the other (i.e., non-LEP) to produce a conservative estimate. Dubois (1980) applied a method which equalized misclassifications of both LEP and non-LEP students. The method involved empirically examining every possible cutoff score at each level and selecting the one that best met their objective. New probabilities of errors were computed and applied to the CESS results to provide the new estimate. This resulted in an estimate of 2.6 million limited-English proficient persons, 5-14 years of age, which was 9.2% higher than the original CESS estimate. The method applied by Dubois was acknowledged by the primary contractor of the CESS study (see L. Miranda and Associates, 1980, in Methodological Review of the CESS, 1982). However, the CESS advisory panel had earlier considered the Dubois procedure but rejected it in favor of the more conservative procedure applied in the CESS.

The Projection Study. The estimates produced by the Projections of Non-English Language Background and Limited-English Proficient Persons in the U.S. to the year 2000 study (Oxford et al., 1981) were based on a combination of the CESS, the Survey of Income and Education, Census Bureau population projections, together with various adjustments. The

project developed the Cohort Component Prevalence Rate Method and a new MELP. The projections were, therefore, related to the same direct measure of English proficiency as used in the CESS.

Projected estimates in the Oxford et al. study used the LM&AI cut-off scores developed by Dubois (1980) and two survey questions selected on the basis of their ability to discriminate between LEP and non-LEP children, as determined by the LM&AI. The survey items were a rating of the child's ability to speak and understand English and the child's family income (above or below $15,000). The survey items (MELP) were used to determine the LEP rates from the CESS which should be applied to the NELB populations in the 1976 Survey of Income and Education data set. The reason for using the SIE was that it provided state-level NELB estimates, while the CESS did not. The national LEP estimate produced in this study was 2.5 million 5 to 14 year olds in 1976, which differs somewhat from the 2.6 million in 1978 estimated by Dubois (1980).

Groups identified as LEP by these Title VII studies may or may not have been more proficient in, or dependent on, their native language, but they were limited in English proficiency according to the test-score or survey criteria applied.

The Milne and Gombert estimate. The Milne and Gombert (1981) estimate of the LEP population was based on a special Office of Civil Rights school survey asking for the number of children who spoke or used a non-English language more often than English. The definition attempted to estimate the child's relative frequency of language use, as measured by school official's report in response to the OCR compliance survey. No information was reported to indicate who responded to the question, or what evidence served as the basis for response. Children may or may not have been limited in English even though they were dependent upon another language. Similarly, some children may not have been reported who nevertheless were limited in English but who appeared

to use English more often simply because of the school context in which they were being judged. Studies show that children use appropriate language in school even if they don't speak the language well or don't use it regularly in other situations (Fishman, Cooper & Ma, 1971; Cohen, 1975; Politzer & McKay, 1975; Zirkel, 1976; Poplack, 1981; Rodriguez-Brown & Olivares, 1981; Hayes, 1982). The number of children estimated to be enrolled in public schools and to use a non-English language more than English was 933,828, less than half the estimate in the studies which used a direct measure of English proficiency and which included LEP children regardless of the primary language they used in the schools.

The Barnes and Milne estimate. The data base employed by Barnes and Milne (1981) did not include a direct measure of English proficiency, either. Barnes and Milne used scores from a modified standardized reading achievement test (Comprehensive Tests of Basic Skills, administered as part of an evaluation of Title I to children in grades 1 through 6), as a measure of English proficiency. Before employing the reading achievement criterion, Barnes and Milne limited the LMP pool on the basis of responses to a survey question in the Sustaining Effects Study (1978). That question asked parents what use they made of English and the non-English language when helping their child with school work. Three categories of students were formed from households in which a non-English language was spoken regularly:

1. Children in homes where English was regularly spoken and where help on homework was given exclusively in English.

2. Children from homes where English was regularly spoken and who received help on homework in both English and the non-English language.

3. Children in homes where English was not regularly spoken or where help was given only in the non-English language (Barnes & Milne, 1981, p. 22).

Barnes and Milne then provided two estimates of potentially-eligible LEP children, one estimate formed by combining categories 2 and 3, and the second by using category 3 only. Barnes then used the criterion of scoring below the 40th percentile on the CTBS reading achievement test to identify LEP children in these two LMP pools. The 40th percentile was suggested in the NPRM. The use of percentile cutoffs may be contrasted with state educational policy, for example Texas, which employed the 23rd percentile, but revised it to the 36th percentile under court order (U.S. vs. Texas, 1981), and California, which has suggested the 36th percentile (California Reclassification Committee Report, California State Department of Education, 1980). Barnes and Milne reported that the first estimate of 1.3 million is based on "...those children whose usual language is English (but whose parents' usual language is not), as well as the children whose usual language is not English" (p. 30). According to Barnes and Milne, this category was too inclusive to represent the eligible population. The second estimate of 700,000 children (Category 3 only) was defined as "...those children whose usual language is not English..." (p. 30). Barnes and Milne interpreted this population to be the most in need, and thus representing the eligible LEP population.

Estimates for secondary school students were obtained by applying elementary school LEP rates to secondary enrollments. No actual language or language related data were used for these students since the SES did not collect test data beyond the sixth grade. The extent to which help with homework in a particular language reflects (or does not reflect) dependence on the language is not known. There was a 12.5% non-response rate (i.e., parents who did not help their children or who did not respond).

Summary. In summary, estimates derived from the Congressionally mandated CESS (1981) and related studies were based on a definition which described an LEP child as a language minority child who performs below a criterion level on a test designed to measure skills necessary

to profit from all-English instruction. Estimates derived in the Barnes and Milne (1981) report were based on a definition which described an LEP child as one who scored below the 40th percentile on a standardized reading achievement test, and who was dependent upon a non-English language (i.e., came from a home in which a language other than English was regularly spoken and either English was not regularly spoken, or the child received parental help with homework in the non-English language exclusively). The estimate provided by Milne and Gombert (1981) represented an LEP child as one who used a non-English language more often than English.

Samples used by each estimation study. Variations in sampling procedures also contribute to different estimates. For example, some national estimates were based on samples drawn from the total population of the U.S., while others were based on school-aged populations only. Additionally, some estimates were derived from existing data sets that were obtained for purposes other than to estimate LEP children, or to represent language minority populations. The urgent need for estimates without the time for a specifically-designed study or sample often has been the overriding consideration in utilizing a particular data base. Thus, some estimates are derived from a data base selected because it represents a national sample (but not necessarily language minority populations), contains some language information (not necessarily the most inclusive), or contains other data which is consistent with some of the purposes the particular study wishes to address.

The characteristics of a data set can affect the derived estimates of LMP and LEP populations. Four principal data sets were used to estimate the language minority and/or limited-English proficient population in the U.S.:

1. The Survey of Income and Education of 1976 (SIE);
2. The Children's English and Services Study of 1978 (CESS);

3. The Study of Sustaining Effects of Compensatory Education on Basic Skills (SES, 1977); and

4. The Office of Civil Rights/ED, Elementary and Secondary School Survey of 1978 (OCR Survey).

The SIE data. The 1976 SIE was designed to meet a Congressional mandate for information on the numbers of persons, especially children, who lived in poverty. Congress also mandated the National Center for Education Statistics (NCES) to estimate the number of persons from non-English or limited-English backgrounds. The NCES took advantage of the poverty survey by providing funds for adding a supplementary sample of 35,000 households to obtain information on the non-English background populations. Since the U.S. Bureau of the Census could not conduct direct testing of respondents in their survey, no estimate of the limited-English proficient population based on language testing was possible. NCES, however, with assistance from the Center for Applied Linguistics, developed a set of survey-type questions as an alternative to direct testing which, with additional information on LEP rates (to be obtained from the CESS), would serve as a surrogate measure of English language proficiency.

Possible sources of variance in the SIE data derive, in part, from the variance contained in the data sets used to design the sampling in the SIE. The SIE samples were drawn using prior data sets, notably the 1970 Census and the Current Population Surveys, which are suspected of undercounting large segments of the language minority population (U.S. Commission on Civil Rights, 1974; U.S. Bureau of the Census; see National Center for Education Statistics, 1980). Data from the 1970 Census also was "aged" to conform to the year in which the sample survey was conducted. Incomplete information on the "aging behavior" of the Spanish origin population (based on its different age structure and rate of growth patterns) may possibly have contributed to an underestimate.

Variance due to administrative differences is likely to be small for the SIE. The SIE received the benefit of many of the quality control procedures of the U.S. Bureau of the Census regarding questionnaire completeness and coverage, editing, and coding. The set of fifteen language-related questions make the SIE the most comprehensive set of national data on language, documenting languages spoken in the household, mother tongue of individuals, and individual languages spoken.

The CESS data. The CESS was a result of Congressional mandates (Title VII, 1974) to the National Center for Education Statistics (NCES) and the National Institute of Education (NIE) to provide a count or estimate of the number of language minority persons who were limited in English abilities, and the basic educational needs of these children. The principal purpose of the CESS was to determine the number of children of limited-English Proficiency (LEP) ages 5 to 14, for the nation, for four geographic areas (California, Texas, New York, and the rest of the country), and for two language classifications (Spanish and all other non-English languages combined). The study was designed as a household survey, including a questionnaire and a specially-developed test (the Language Measurement and Assessment Inventories--LM&AI) to assess the language abilities of children in reading, writing, speaking and understanding English. Estimates of LMP in the CESS correspond to the SIE both by definition and because the SIE language distribution results for the U.S. were used to design the sampling plan for the CESS.

In the Spring of 1978, adults in a nationally representative sample of approximately 35,000 households were interviewed to determine if a language other than English was spoken in the household (i.e., used usually or often) and whether there were children between the ages of 5 and 14 living in the household. From this sample, approximately 2,200 households were identified in which a final student sample of 1,909 were actually tested.

Possible sources of error in the CESS data can be attributed to sampling errors and to the language test itself. A methodological review of the CESS was made by the National Center for Education Statistics, Office of Research and Analysis (NCES/ORA) (Dubois, 1980). In their review, three analytical issues were discussed:

1. Were items properly selected for inclusion in the LM&AI?
2. Were cut-off scores for the LM&AI set properly?
3. What were the effects of non-response bias on the counts and estimates of the number of LEP children?

The first issue concerns whether the test measures a dimension other than English language proficiency. After reviewing comments from several researchers in language assessment, the NCES/ORA review concluded that the effect of developmental and other variables related to cognition or achievement could not be determined on the basis of information available from the LM&AI. They went on to recommend that a caveat be included in the final CESS report to indicate that there are "clearly limitations to the CESS results which are a function of the current state-of-the-art in the assessment of language proficiency" (Dubois, 1980, p. 8). A secondary analysis of the CESS data was also considered as a possibility but was rejected: "...the results of such a study would probably not warrant the cost since tests of language proficiency are generally confounded with language and other factors" (p. 8). In general, however, it seems agreed that the validity of the LM&AI, as for language assessment instruments in general, needs to be examined in greater detail.

The second issue concerns selection of the cutoff score. Here the NCES/ORA (Dubois, 1980) review points out that under the discriminant analysis procedure used, there was a greater probability for LEP children to be misclassified as English-proficient than for the opposite, that is, for fluent English speakers to be classified as LEP. A re-analysis by NCES/ORA (Dubois, 1980) considered all possible cutoff

scores to obtain a criterion which would balance the probability of misclassification for both LEP and fluent English speakers. The re-analysis resulted in a 9.2% higher estimate of LEP students (i.e., 2.6 million as opposed to 2.4 million).

The third issue concerned the effects of non-response bias on the household screener (76.2%), household questionnaire, (93.8%), and the LM&AI (84.6%). The conclusion reached was that a study of non-response bias probably would not greatly change the total LEP count in one direction or another. The recommendation was that "further investigations of non-response bias associated with the 1978 CESS are not warranted" (Dubois, 1980, p. 15).

The SES data. The Sustaining Effects Study (SES) was a set of five individual studies using three different samples (totaling 243 public schools) of the nation's elementary schools. The purpose of the study was to evaluate the enduring effects of compensatory education on children in these schools, especially as it was related to special funding (e.g., ESEA Title I funds). The study was not directed specifically at the language minority or limited-English proficient populations. There were no formal or explicit definitions of either of these populations, and bilingual education programs were not included within the study's definition of compensatory education.

The sample included 5,000, grade 1-6, public schools selected out of a universe of 62,000 schools. According to Barnes and Milne (1981), the initial sample of 5,000 schools was drawn to be representative of those serving poor children. In selecting the 243 schools, 28 of the 5,000 schools were excluded because "most of their students were in special language programs (bilingual or English-as-a-second-language) and would have difficulty with the study's English language instruments" (Barnes & Milne, 1981, p. 21).

Estimates of LEP populations were made from a subsample of 15,579 students for whom home language use data were available. This consisted of about one-fifth of the sample. Of the 15,579 students, home interviews were used to identify 1,856 children as having a non-English home language. In homes where a non-English language was spoken regularly, a question was asked about the language used in assisting the child with homework.

Achievement data were obtained for all of the students in the sample using six different versions of the Comprehensive Test of Basic Skills (CTBS), which were renormed for the study.

Possible sources of error in the SES data base come primarily from the sampling strategy and the measure of language ability. First, the sample includes only elementary grade school children. Thus, findings have to be extrapolated to the secondary schools in order to include all public school children. In addition, the sample was specifically selected to represent Title I programs, since this was the focus of the study, and it did not include bilingual education as part of the Title I definition of compensatory education. Also excluded were schools which reported that most of their students were in special language programs because such students would have had difficulty with the English achievement tests. No information appears to be available, however, concerning whether individual limited-English speaking students were allowed to be tested, or whether they were excluded from the particular school sample.

The sample was selected to represent "poor" children. The effect of a sampling strategy aimed at the poor and at compensatory education programs on obtaining a representative sample of language minority children is not known. But given the intention to not confound language ability with the impact of compensatory programs, an underestimate would more than likely result. This is supported by the fact that none of the

students who were included in the sample were reported to be so limited in English that they could not be tested in English.

The OCR data. The Office of Civil Rights (OCR) is responsible for administering Title VI of the 1964 Civil Rights Act as it applies to non-discrimination in federally funded programs. As part of this responsibility, the Office of Civil Rights conducts periodic surveys of public elementary and secondary schools to collect information on the racial and ethnic characteristics of the students in selected school districts, as well as the educational services received by the students. The 1978 survey was a sample survey covering over 6,000 districts and the 54,000 schools in those districts. The OCR survey did not use the LMP or LEP concepts directly in their collection of data. Thus, a related concept referred to as PLOTE (Primary Language Other Than English) came the closest to representing a measure or gauge of language ability. PLOTE was determined on the basis of a school district's report on the count of the number of "pupils in membership who speak or use a language other than English more often than English." The sample was not intended to be representative of the language minority population in the U.S., given the purposes of the OCR survey.

The possible sources of error with the OCR data base stem from its purpose--the fact that it was a "compliance monitoring" study. Since OCR uses the data for monitoring and enforcement purposes, these data are useful primarily towards that end. To use the data as a basis for estimating the language minority population in need of special language support services may be inappropriate. These surveys are described by OCR as "enforcement vehicles"; for that reason, they may be associated with reporting biases. For example, if the number of students who speak a non-English language more often than they speak English is greater than the number being served, the school would be reporting a possible non-compliance situation. In addition, the OCR survey uses a PLOTE (Primary Language Other Than English) definition as a measure or gauge of language ability. Under this definition, nothing can be said

concerning a child's ability to use either language, or whether that child is having difficulty with instruction in English. Moreover, the measure of language use is given by an unknown res ondent at the school, and this is the only source of information on which this designation is based.

Summary

Four principal data sets were used to estimate the language minority and/or limited-English proficient population in the U.S. The characteristics of each data set can affect the derived estimates of LMP and LEP populations. Possible sources of variation in the SIE data set derive from the variance contained in data sets used to design the sampling plan in the SIE, which possibly contributed to an underestimate. The CESS data may contain error attributable to sampling errors and to the LM&AI, the language test designed to assess the English language abilities of the children. Possible sources of error in the SES data come primarily from the sampling strategy--the sample represented compensatory education programs but excluded bilingual education programs, and findings on elementary schools were extrapolated to secondary schools--and on the measure of language ability. The OCR data is derived from a sample survey which was not designed to be representative of the LMP in the U.S., and which was intended as a compliance monitoring study, which may lead to undercount. Further, the measure of language use does not provide information on a particular child's ability to benefit from all-English instruction.

IV. DISCUSSION

Discrepancies in estimates of language minority limited-English proficient populations are fundamentally a product of differences in:

1. Definitions, both of language minority and of limited English proficiency.
2. Purposes for which the estimates were derived, including: school enrolled vs. all school-age children; public school vs. private school children.
3. Methodologies, including measurement and estimation procedures.
4. Data bases, including whether the sample was specifically designed to be representative of the language minority population or of some other group.

All of these factors singly or in combination contribute to discrepancies in the estimates.

The crucial element is the conceptualization of the eligible population of children in need of language services and, conversely, those not in need. The O'Malley (1981) and Oxford et al. (1981) studies were designed to address the population of students as defined under Title VII (as amended in 1974). LEP students in the CESS (O'Malley, 1981) are LMP children (in the broadest sense) who display tested levels of language proficiency believed to be associated with difficulty with instruction in the English language. The procedures applied in these studies called for (a) identifying an LMP based on "most inclusive" criteria; and (b) identifying LMP students who were having difficulty with English instruction. Based on the interpretation and procedures applied in the CESS, the eligible LEP student is a language minority child who performs more poorly than a native English-speaker on a test intended to measure skills necessary to profit from all-English instruction.

The LEP population reported in Oxford et al. (1981) was determined by a surrogate measure of language proficiency which included a combination of judged English language proficiency and income, and language and geography. These LEP estimates are probability estimates of the size of the LEP population based on the "Cohort Component Prevalence Rate Method" developed by Oxford et al. (1981). Except for possible errors in methodology and variance in the data sets used to derive these estimates, one would expect the estimates to agree with the NELB (i.e., LMP) and LEP estimates reported in Dubois (1980). Language characteristics of children identified as eligible for, or in need of, special language-related services would be roughly the same as those described in the CESS. These children may or may not have been more proficient in, or dependent on, their native language.

Barnes and Milne (1981) and Milne and Gombert (1981) attempted to estimate the number of children eligible under different conceptualizations of language need, as specified under the proposed Lau rules, since withdrawn.

Barnes and Milne (1981), defined an LEP child as one who: (a) Used a language other than English regularly in the home (although English may also have been used regularly in the home); (b) either used the non-English language more than English, or did not use English regularly in the home; (c) received all help with homework in the non-English language; and (d) scored below the 40th percentile on a standardized test of English reading achievement. The Barnes and Milne (1981) estimate argued that only children who were either dependent on a non-English language or were from homes in which English was not used regularly should be considered for inclusion in the eligible LEP population (i.e., score below the 40th percentile on reading achievement). The educational needs of limited-English proficient children who come from homes in which the non-English language is not used regularly or who use English much more than their non-English language were not addressed, since these students would not be eligible

for federal support (i.e., Title VII) under the Barnes and Milne (1981) definition.

Milne and Gombert (1981) defined an LEP child simply as a child whose primary language was other than English (PLOTE), that is, who used a non-English language more often than English. Nothing more was said about the child's level of proficiency in either language. Accordingly, a child may or may not have been limited in English proficiency; similarly, a child who used English more than the non-English language may still have been limited in English proficiency.

In adopting the PLOTE definition, this study provided estimates only on a smaller subset of the LMP children. According to this PLOTE conceptualization, there were 933,000 children who were attending public school and who spoke or used a language other than English more often than English. Nothing could be said concerning the children's ability to use either language, or whether they were having difficulty in English-only classrooms. The number represents an estimate made by an unknown respondent at the school; it is not based on actual observation or records regarding the students' language characteristics.

The consistency or comparability of the Barnes and Milne (1981) and the Milne and Gombert (1981) conceptualizations of the eligible LEP population to other definitions of LEP cannot be determined. Even though Barnes and Milne (1981) present an argument for such a relationship, it is based on the assumption that the language categories (and subset categories) defined in the separate data sets are comparable, when in fact they are based on different questions (Estrada, 1981). However, children who use a language other than English more often than English may or may not be limited in English proficiency. As such, they would not necessarily represent a subset of a limited-English proficient population defined by other criteria. Similarly, under some definitions (e.g., Title VII), a LEP child may not necessarily use a non-English language more than English and still be eligible for and

need bilingual or special English language instruction; however, the number of such children appears to be small (Hayes, 1981; DeAvila & Ulibarri, 1981).

This misconception is, perhaps, best illustrated when Barnes and Milne (1981) compare estimates of "high need" children in grades 1-6 from the Sustaining Effects Study (SES) with those from the Children's English and Services Study (CESS). The SES data show approximately 100,000 more "high need" children than the CESS. A look at the question on which the estimates are based explains the difference. The SES estimate represents the number of children who responded "no" to the question, "Is English regularly spoken in your home?", while the CESS estimate represents the number of children in homes where English is neither (a) the usual or (b) a second ("often spoken") language. Thus, the SES estimate includes children who come from homes where English may be the second most often spoken (though not regularly spoken) language; these children are excluded from the CESS estimate.

The importance of the issue of defining who is and who is not in need of special educational services when estimating the eligible population needs to be emphasized. In many of the definitions (or their operational criteria) specific assumptions are made which do not address educational concerns nor take into account research bearing on the issue of appropriate educational services for students based on their proficiency in the home language as well as in English.

Of major concern is whether limited-English speaking children with varying degrees of proficiency in their non-English language (many of whom are more proficient in English) would benefit more from instruction if bilingual or English language-related services were provided to them (cf. Cummins, 1978). The question is not whether an individual student is dependent on the non-English language, but whether the student is proficient enough in English to benefit from instruction in an English-only classroom without some form of special language assistance.

An emphasis on language dominance alone eliminates from consideration for special language assistance those children who are from language minority populations and are limited in English proficiency, but who apparently are dominant in English.

Unfortunately, the issue of estimating how many children need special language services has become confused with the policy debates about who is eligible for these services. The four estimates based on the SIE and the CESS defined the need population according to the criteria in Title VII (as mandated) and thus included all limited-English proficient children. The other studies defined the need population as those children who have a primary language other than English, who are limited-English proficient, and who are primary language superior and/or comparably limited. Thus, the apparent differences in estimates are due primarily to the different definitions of groups to be estimated rather than to differences in the estimates produced.

It is clear that once an understanding is reached concerning the eligible population, the validity of the number remains to be considered. Estimates of LEP children derived even from studies specifically designed for that purpose have some serious drawbacks from a measurement and a definitional point of view. Estimates derived from other existing national data sets not specifically designed for these estimation purposes not only contain the same drawbacks, sometimes to a greater degree, but also introduce other sources of variability which are not easily accounted for. Finally, what is most important is that any attempt to estimate the population eligible for and in need of bilingual or special English language-related services must ultimately be based on what is the best way to educate LMP children who cannot succeed in an English-only classroom.

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