

unpublished
manuscript;
presented
in 1992

BILINGUALISM AS A GIFT

Kenji Hakuta

School of Education

Stanford University

Through immigration, annexation and slavery, the United States has been home to native speakers of virtually every modern language of the world. Despite this fact, the country remains known for its English monolingual citizenry. Bilingualism for the most part is merely a transitional phase in the Americanization of immigrants (Fishman, 1966; Grosjean, 1982). Through an attitude aptly characterized by Joshua Fishman as one of "benign neglect", the bilingualism attained by the children of immigrants rapidly shifts into the English monolingualism of the next generation (Veltman, 1983). Bilingualism is not viewed as a desirable by-product of immigration that, if properly respected and nurtured, would enrich the linguistic and cultural profile of the nation. Indeed, it is for the most part prized if accomplished through formal study as a foreign language by native speakers of English (this achievement being attained through great travail and generally nowhere close to approximating native-like levels in the language). In many ways, societal attitudes and educational policies and practices combine to make the United States an efficient producer of transitional

PAPER PRESENTED AT THE ESTHER KATZ ROSEN SYMPOSIUM ON THE
PSYCHOLOGICAL DEVELOPMENT OF GIFTED CHILDREN, UNIV. OF KANSAS.
TO APPEAR IN PROCEEDINGS.

bilinguals whose gifts are unappreciated and allowed to go to waste.

It is not the purpose of this chapter to perform a survey of the literature of this rather massive squandering of national linguistic resources. Rather, I am going to expand on a simple bias that I have regarding bilingualism as a talent and where I believe it intersects with the goals of this volume on giftedness: bilingualism is a valuable gift; all children should be given the opportunity to develop competence in bilingualism to the fullest extent possible, and as a group, language minority students have special access to this gift. In this chapter, I hope to present some capsule accounts of work through which I have gained some insights into how the gift of bilingualism might be best developed in language minority students.

LABELS AND EXPECTATIONS

The first place to start thinking about the problem is how we use labels for bilingual children. When I first began conducting research in this area, I was struck and confused by the different ways in which the term "bilingualism" was used. Technically speaking, for example, a bilingual is an individual who has some criterion level of proficiency in two or more languages, but to the person on the street, a bilingual is often a convenient label for someone who is an immigrant marked by some degree of limited ability in English. In schools, it is still not uncommon (especially among school psychologists who are not

trained in issues of language development) to hear students labelled as "bilingual" when indeed they are really monolingual in the foreign language. At least one key semantic thread running through the term "bilingual" seems to be associated with a deficit to be overcome.

The deficit approach towards bilingualism in fact characterizes most bilingual education programs in this country, with fewer than 15 percent of programs in the elementary schools emphasizing the continued development of the native language even after the children acquire English (Young, 1984). Indeed, in most programs, students are eligible for bilingual education programs only if they are classified as LEP, for "limited English proficient". I find this acronym to be simultaneously misguided and in poor taste. In many schools, speakers of languages other than English who are in the process of English acquisition, through this label as well as actions and attitudes, are continuously reminded of their deficiencies in English. In policy circles and the media, so-called bilingual education programs are under constant fire for failing to teach English rapidly enough (see Hakuta, 1986). (In a small attempt to correct for the effects of labelling, with apologies to Zipf's Law, in this text, I will refer to such students as "speakers of languages other than English".)

The point here is that neither the terms "bilingual" nor "LEP" connote positive valence for the native language. By

emphasizing the deficit in English, they lead to a remediation approach, and the inherent value of the linguistic resources contained in the non-English language is denied. The public discourse about language policy is almost exclusively about whether the speakers of languages other than English are learning English rapidly enough. "LEP counts" are carefully monitored (Waggoner, 1984) much in the same way as society keeps track of its incidence of diseases, but little public attention is given to data on the variety and numbers of citizens who do speak languages other than English (Fishman, 1966; Veltman, 1983, 1988). To bring the point home, consider the data recently collected by the California State Department of Education (1990) on the number of limited and fluent English-proficient students, reproduced in Table 1. In the press as well as in political circles, attention is almost exclusively on the first column, seen as "the problem", with the second column being those who

INSERT TABLE 1 ABOUT HERE

have been "cured". Personally, I am more interested in the fact, for example, that there are over 7,000 children who are bilingual in Farsi and English.

BILINGUALISM, COGNITIVE FLEXIBILITY, AND METALINGUISTIC AWARENESS

As I have noted elsewhere in considerable detail (Hakuta, 1986), there is now a lengthy literature on the topic of the

effects of bilingualism on various aspects of the cognitive functioning of children (the most up-to-date and thoughtful review can be found in Reynolds, in press). The literature has its beginnings in the early 1900's, and one can easily identify a "pivot" in the literature in 1962, when Elizabeth Peal and Wallace Lambert published a study in Psychological Monographs showing an advantage for bilingual children over monolingual children on various measures of verbal and nonverbal intelligence. Based on this work, they characterized the bilingual child as one "whose wider experiences in two cultures have given him advantages which a monolingual does not enjoy. Intellectually his experience with two language systems seems to have left him with a mental flexibility, a superiority in concept formation, a more diversified set of mental abilities.... In contrast, the monolingual appears to have a more unitary structure of intelligence which he must use for all types of intellectual tasks" (P. 20). The research since that seminal piece of work (whose methodological insight was to select the bilingual sample ensuring that they indeed were proficient in their two languages, rather than relying on unreliable indicators of language proficiency such as ethnicity) has generally shown a favorable effect of bilingualism on a variety of measures (see Diaz, 1983, who gives a useful review of the various dependent measures that have been used), although not without ambiguity (see MacNab, 1979; Hakuta, 1986; Reynolds, in press).

The good news about the positive effects of bilingualism in the research after 1962 stands in stark contrast with the gloomy assessments such as those represented by George Thompson in his textbook on child psychology published in 1952, where he concludes: "There can be no doubt that the child reared in a bilingual environment is handicapped in his language growth. One can debate the issue as to whether speech facility in two languages is worth the consequent retardation in the common language of the realm" (P. 367). A long parade of papers, especially in the 1920's and 1930's, participated in the denigration of non-Northern European immigrants. Much of this work looked at their performance on the newly minted IQ tests, and bilingualism was certainly a factor involved in this controversy. The probable best intentions of the individual psychologists to be helpful notwithstanding, it is evident from a telescopic view of the process that the net effect of this work was to reinforce the prevalent views of society towards the new immigrants (here represented by Francis Walker, president of M.I.T.): "These immigrants are beaten men from beaten races, representing the worst failures in the struggle for existence.... Europe is allowing its slums and its most stagnant reservoirs of degraded peasantry to be drained off upon our soil. (Quoted in Ayres, 1909, p. 103).

Of likely interest to the psychologist reader were some of the reasons underlying the so-called "language handicap" of

bilinguals. Florence Goodenough (1926), who was an ardent advocate of the hereditarian position, went so far as to suggest that groups with low intelligence learned English more slowly. In Table 2, I have reproduced as an icon of the era her Table I that compares the language retention rates among different language groups, correlating these retention rates with group IQ scores. She interprets the data as follows: "This might be considered evidence that the use of a foreign language in the home is one of the chief factors in producing mental retardation as measured by intelligence tests. A more probable explanation is that those nationality groups whose average intellectual ability is inferior do not readily learn the new language" (P. 393).

INSERT TABLE 2 ABOUT HERE

Jim Cummins (1976) wrote an insightful paper that reviewed the conflicting findings between the positive and negative effects of bilingualism. He concluded that the key difference between the two lines of work had to do with whether the subjects had indeed attained a "threshold" level of bilingualism. Studies after 1962 carefully controlled for level of bilingualism, while the earlier studies tended to select subjects on the basis of ethnic criteria and therefore may have contained subjects who were not really bilingual (in Hakuta, Diaz and Ferdman [1987], we

refer to these as cognitive level bilingualism and societal level bilingualism, respectively). Cummins concluded that there might be a threshold level of bilingualism needed to be attained before the positive effects appear, and that if this level is not attained, there may be negative effects.

In a population where the native language is valued and the second language is seen as an enrichment that does not threaten the status of the native language, individuals are likely to attain a state of balanced bilingualism. Lambert (1975) used the term "additive bilingualism" to refer to this sociolinguistic situation, a salient example being the situation in Canada where the Anglophones are learning French through immersion programs, yet the status of English is guaranteed due to the economic and social base of the language. On the other hand, Lambert referred to the situation of most minority language groups as "subtractive", where the native language has low status and is expected to be replaced by the majority language. In situations of subtractive bilingualism, individuals are less likely to attain threshold levels of competence in the two languages.

While it may be the case that positive effects of bilingualism are more likely to show up in bilingualism attained by high-status majority group bilinguals in additive situations, we have conducted research to show that these effects can be found even in language minority groups, especially where the native language receives support through a bilingual education

program with an additive philosophy (the native language is not just a temporary crutch until English is learned, but rather an asset to be developed for its own sake). Our research was conducted in the context of a bilingual education program for Puerto Rican children in New Haven, Connecticut, following four different cohorts of children starting at grades K, 1, 4 and 5 over a period of two to three years (Hakuta & Diaz, 1985; Diaz, 1985; Hakuta, 1987; Galambos & Hakuta, 1988; Hakuta, Diaz & Ferdman, 1987). The main methodological insight of the study was to eschew bilingual-monolingual comparisons in favor of a within-group design, using degree of bilingualism (proficiency attained in the second language controlling for proficiency in the native language) as the predictor variable for a variety of cognitive measures (including the Raven's Coloured Progressive Matrices and other intelligence measures, as well as judgments of grammaticality and ambiguity of sentences). The results showed a small but consistent positive effect of degree of bilingualism on the cognitive measures. In Hakuta, Diaz and Ferdman, we discuss these cognitive level findings in light of background survey work on the bilingualism in the Puerto Rican community that indicates an overall subtractive pattern of bilingualism, with replacement of Spanish by English. We argued that the bilingual education program can be seen only as a temporary oasis of additive bilingualism within a bigger picture of loss of Spanish. Nevertheless, even within this somewhat subtractive context for a

linguistic minority group, we were able to demonstrate a positive effect of bilingualism that is of similar magnitude as that found in additive bilingual settings where both languages are valued.

Implications

Recent work easily refutes the early fears of the negative consequences of bilingualism. Now, it appears as though there may be increased cognitive flexibility and awareness of language that accompanies the development of two languages. In addition, of course, there is the obvious (though strangely overlooked) benefit of gaining access to the culture of two languages. Thus, there is much to be gained, both cognitively and linguistically, by maintaining and developing the native language of the bilingual children. Unfortunately, bilingual education programs in this country are primarily remedial, where success of the program is judged by the rapidity with which students can be "exited" into English-only classrooms (column 1 kids in Table 1 moved to column 2). Instances of school districts taking an initiative in advancing true bilingualism as a goal for all of their students are rare indeed, but they need to be studied as potential models for how educational leadership in this area comes about (see Pease-Alvarez, 1989 for a case study of such a district; Lindholm, 1987 compiled a list of school districts that have implemented "two-way" bilingual education programs with such a goal in mind). In sum, the cognitive and linguistic reasons

are there for developing true bilingual education programs. The primary obstacles are programmatic and political in nature.

TRANSLATION AND INTERPRETATION SKILLS

Several years ago, I was sitting around with some bilingual education teachers in New Haven talking about how entrenched educators have become in talking about the deficits of "LEP's". At that point, Steve Strom, a third-grade bilingual teacher, said something to the effect of: "If you want to take a look at something that the kids can do, why don't you take a look at their skills in translation? I have my bilingual kids translate all the time in the classroom sitting next to kids who just arrive from Puerto Rico. They're really good at it." That comment led us to conduct a series of studies on the nature of translation and interpretation skills in bilingual children (Malakoff & Hakuta, 1991; Malakoff, 1991; Shannon, 1990).

In our experiments, we identified a group of 4th and 5th grade Puerto Rican Spanish-English bilingual children who were quite experienced in translating for their relatives, and subjected them to a series of translation tasks, ranging from response latency in translating words and sentences to written translation of short stories. Most noteworthy perhaps was the fact that they made very few errors in their translation, despite the fact that we had set up the stimuli to cause difficulty if the children were translating literally (we included stimuli with idiomatic expressions and phrases where word order in Spanish and

English differed). We also found that translation efficiency on any given task (as measured in response latency) was a function of two parameters: their linguistic proficiency in the target language (the language they are translating into) and their ability to access the lexicons of the two languages (as measured in a task where a decision had to be made on whether a particular word was a Spanish word or an English word). The latter, we believed, could be considered a "translation proficiency" that may develop independent of the two language proficiencies (thus accounting for what trainers of translators and interpreters have told us, that simple bilingual proficiency is not sufficient). Finally, reflecting the general subtractive nature of the bilingual situation, we found that subjects in general were faster translating into English than into Spanish (i.e., they were dominant in English). Finally, using a less selected group of bilingual subjects from the same school district, we found a similar pattern of results, and most recently, Malakoff (1991) in her doctoral dissertation found similar results with a group of high-status additive French-English bilinguals in an international school in Geneva.

Thus, we concluded that translation is a natural skill that is available to all bilingual children in subtractive and additive settings, although there are individual differences in translation proficiency. We also believe that translation is a metalinguistic skill par excellence because it requires the

continuous comparison of the two languages (see Malakoff, 1991 for a detailed theoretical discussion and the possible relationship between translation and other linguistic skills, including paraphrase).

Implications

Although language educators in both foreign language and bilingual education are rightfully wary of translation as a pedagogical tool for teaching a second language, it is appropriate to consider its use as a way of amplifying the bilingual knowledge and skills in children who have acquired a measure of proficiency in the two languages. We have introduced translation as a way of enhancing language awareness with middle school and high school language minority students (Shannon, 1990; Walqui, 1989). The programs were developed with the belief that there are both psycholinguistic and sociolinguistic aspects to the development of awareness about language. Psycholinguistic awareness refers to knowledge and appreciation of the formal aspects of language, such as phonology (e.g., the /p/ and /b/ sounds are distinguished differently in English than in Spanish) and grammar (e.g., Spanish systematically marks the distinction between imperfect and preterite past tense on verbs, while English does not). Sociolinguistic awareness refers to knowledge and appreciation of language use and variation, such as the fact that people from different regions of the country speak differently. We believe that it is possible to use translation

as a way of enhancing both of these aspects of metalinguistic awareness as well as the status of bilingualism by highlighting it as a noble and sophisticated skill -- the crowning achievement of bilingualism (see Walqui, 1989).

CHARACTERISTICS OF LANGUAGE SHIFT

In a recent series of studies, we have been investigating the nature of the maintenance and loss of Spanish in two communities in Northern California. Although survey data indicate a rapid two-generation shift to English even among Spanish speaking groups (Lopez, 1978; Veltman, 1988), there is little data on actual proficiency and the psychology underlying this process. In one study (Hakuta & D'Andrea, in press), we looked at about 300 high school students of Mexican background in Watsonville, a rural community whose demographic characteristics would be ideally suited for the maintenance of Spanish. The subjects were given a battery of paper and pencil tests of Spanish and English proficiency (vocabulary production, grammatical judgment, and cloze), as well as a questionnaire that elicited immigration background information, self-reported language choice and attitudes towards bilingualism. Based on self-report, the subjects were divided into the following immigration background groups (called Depth):

Depth 1: Born in Mexico, arrived in the USA > 10 years old.

Depth 2: Born in Mexico, arrived in the USA between the ages of 6 and 10 years old inclusively;

Depth 3: Born in Mexico, arrived in the USA when 5 years old or younger;

Depth 4: Born in the USA, both parents born in Mexico;

Depth 5: Born in the USA, at least one parent born in the USA;

Depth 6: Born in the USA, at least one parent and associated grandparents born in the USA.

With respect to English and Spanish proficiency, the basic results are reproduced in Figure 1. Essentially, the largest difference in English proficiency is found between Depths 1 and 2, after which between-cohort differences are vastly diminished. Essentially, there is rapid acquisition of English proficiency. More importantly, with respect to Spanish proficiency, there is no loss of Spanish proficiency thru Depth 4, after which there is a precipitous drop. Thus, the loss of Spanish can be said to occur almost in a categorical manner. The students in Depths 2, 3 and 4 are strong bilinguals, but as I indicated earlier, this resource disappears rapidly across generations.

The language choice data offers an interesting contrast to the categorical shift observed with proficiency. As can be readily seen in Figure 2, which shows language choice for

INSERT FIGURES 1 and 2 ABOUT HERE

different interlocutors, there is a continuous shift towards English across the different Depth cohorts. This suggests that as soon as English starts to become available as a medium of communication, the shift towards its use as the primary language begins.

Another key aspect of the study was the role of attitudes. In particular, a scale of questions dealing with attitudes towards a bilingual maintenance orientation significantly predicted language choice, but not Spanish proficiency. On the other hand, Spanish proficiency was predicted by the language choice of adults at home.

Thus, from this pattern of results, we infer that there is loss of Spanish proficiency across but not within generations, and there is loss of Spanish choice both within and across generations. Further, the loss of Spanish proficiency is related to the adult language choice in the home, but the loss of Spanish choice is related to attitudes towards Spanish and bilingualism.

The main point for purposes of this paper is that language proficiency is separable from language choice. Language proficiency is primarily a cognitive/psycholinguistic variable, while language choice is a sociolinguistic one. Our study seems to indicate that the cognitive aspects of the native language (i.e., proficiency) is relatively resistant to attrition once a certain level of proficiency has been attained (we are currently designing a study to establish this level), and that it tends to

crumble across generations because parents become bilingual and then make English available for use in the home. On the other hand, the social aspects of the native language (i.e., choice) will begin varying as soon as English becomes available, and will be influenced by social psychological variables.

Recently, we have also been interviewing 10-year old children from the equivalents of Depths 3, 4 and 5 about their language choice. Based on preliminary analyses of the interviews, a striking feature of the explanations about their language choice is the extent to which they justify them by referring to the limited English skills of their interlocutor (for example, their mother). The nuance is that the child's shift towards English is only limited by the interlocutor's skills in English.

Implications

The evidence suggests that there is rapid attrition of the native language in the population of speakers of languages other than English, even in the case of Spanish. Much of this shift to English appears attributable to social psychological factors, rather than to cognitive factors. Indeed, the cognitive retention of language within an individual is quite impressive (this is apparently so even in the case of foreign language proficiency once a given level of proficiency is attained, as suggested in the intriguing work by Bahrick, 1984). Thus, with speakers of languages other than English, programs to enhance

bilingualism should probably focus on the social value of languages.

CONCLUSIONS

The number and variety of speakers of languages other than English in the schools is clearly a striking feature of today's student population (witness the variety in Table 1). If history is any predictor, the languages of these students will at best stay around for their generation, but will not be passed on to their children. Unfortunately, public concern that these students are not learning English is misplaced, for immigrants more than anyone know all too well the social and economic status of the English language. However, the politics of bilingualism are such that even advocates of bilingual education have found themselves backed into a corner, where the programs are justified simply on the basis of their ability to teach English rapidly. The inventory of languages in this country should be valued in their own right, and their preservation the goal of society.

REFERENCES

- Ayres, L. P. (1909). Laggards in our schools. New York: Russell Sage Foundation.
- Bahrack, H.P. (1984) Semantic memory content in permastore: Fifty years of memory for Spanish learned in school. Journal of Experimental Psychology: General, 113, 1-29.

- California State Department of Education (1990). Language census report for California public schools - 1990. Sacramento: California Department of Education, Educational Demographics Unit.
- Cummins, J. (1976). The influence of bilingualism on cognitive growth: A synthesis of research findings and explanatory hypothesis. Working Papers on Bilingualism, 9, 1-43.
- Diaz, R. M. (1983). Thought and two languages: The impact of bilingualism on cognitive development. Review of Research in Education, 10, 23-54.
- Diaz, R. M. (1985). Bilingual cognitive development: Addressing three gaps in current research. Child Development, 56, 1376-1388.
- Fishman, J. (1966). Language loyalty in the United States. The Hague: Mouton.
- Galambos, S. & Hakuta, K. (1988). Subject-specific and task-specific characteristics of metalinguistic awareness in bilingual children. Applied Psycholinguistics, 9, 141-162.
- Goodenough, F. (1926). Racial differences in the intelligence of school children. Journal of Experimental Psychology, 9, 388-397.
- Grosjean, F. (1982). Life with two languages. Cambridge, MA: Harvard University Press.
- Hakuta, K. (1986). Mirror of language: The debate on bilingualism. New York: Basic Books.

- Hakuta, K. (1987). Degree of bilingualism and cognitive ability in mainland Puerto Rican children. Child Development, 58, 1372-1388.
- Hakuta, K. & D'Andrea, D. (in press). Some properties of bilingual maintenance and loss in Mexican background high school students. Applied Linguistics.
- Hakuta, K. & Diaz, R. (1985). The relationship between degree of bilingualism and cognitive ability: a critical discussion and some new longitudinal data. In K. E. Nelson (Ed.), Children's Language, Volume 5 (Pp. 319-344). Hillsdale, N. J.: Lawrence Erlbaum Associates.
- Hakuta, K., Ferdman, B. M. & Diaz, R. M. (1987). Bilingualism and cognitive development: Three perspectives. In S. Rosenberg (Ed.), Advances in Applied Psycholinguistics Volume II: Reading, Writing and Language Learning. (pp. 284-319). Cambridge: Cambridge University Press.
- Lambert, W. E. (1975). Culture and language as factors in learning and education. In A. Wolfgang (Ed.), Education of immigrant children. Toronto: Ontario Institute for Studies in Education.
- Lindholm, K. (1987). Directory of bilingual immersion programs: Two way bilingual education for language minority and majority students. (ERIC Document ED291-241) UCLA: Center for Language Education and Research.

- Lopez, D. E. (1978). Chicano language loyalty in an urban setting. Sociology and Social Research, 62, 267-278.
- MacNab, G. L. (1979). Cognition and bilingualism: A reanalysis of studies. Linguistics, 17, 231-255.
- Malakoff, M. (1991). Natural translation ability in French-English bilingual school-age children: A study of source language errors in naive child-translators. Doctoral dissertation, Dept. of Psychology, Yale University.
- Malakoff, M. & Hakuta, K. (1991). Translation skill and metalinguistic awareness in bilingual children. In E. Bialystok (Ed.), Language processing and language awareness by bilingual children (Pp. 141-166). Oxford: Oxford University Press.
- Peal, E. & Lambert, W. E. (1962). The relation of bilingualism to intelligence. Psychological Monographs 76 (27, Whole No. 546).
- Pease-Alvarez, L. (1989). Bilingual education in Healdsburg, California: Project Puente and the Healdsburg two-way Spanish immersion program. Paris: CERI Project on Education and Cultural and Linguistic Pluralism (OECD).
- Reynolds, A. (in press). The cognitive consequences of bilingualism. In A. Reynolds (Ed.), Bilingualism, multiculturalism, and second language learning: The McGill conference in honour of Wallace E. Lambert. Hillsdale, NJ: Lawrence Erlbaum Associates.

- Shannon, S. M. (1990). Spanish for Spanish speakers: A curriculum involving translation skills. In A. Padilla, H. H. Fairchild, & C. Valadez (Eds.), Foreign language education: Issues and strategies (Pp. 223-237). Newbury Park, CA: Sage.
- Thompson, G. (1952). Child Psychology. Boston: Houghton Mifflin.
- Veltman, C. (1983). Language shift in the United States. Berlin, New York, and Amsterdam: Mouton.
- Veltman, C. (1988). The Future of the Spanish Language in the United States. Hispanic Policy Development Project: New York City and Washington, DC.
- Waggoner, D. (1984). The need for bilingual education: Estimates from the 1980 Census. NABE Journal, 8, 1-14.
- Walqui, A. (1989). Translation-interpretation and community language research. Salinas, CA: Alisal High School Social Studies Department.
- Young, M. (1984). LEP students: Characteristics and school services. Arlington, VA. and Research Triangle Park, NC: Development Associates and Research Triangle Institute.

FOOTNOTES

The research on language shift described in this paper was supported in part by a grant from the Spencer Foundation.

"The rank-order correlation between foreign language ratio and IQ, as given above, is -.754, This might be considered evidence that the use of a foreign language in the home is one of the chief factors in producing mental retardation as measured by intelligence tests. A more probable explanation is that those nationality-groups whose average intellectual ability is inferior do not readily learn the new language." (pp. 392-393).

Source: Goodenough, F. J. (1926). Racial differences in the intelligence of school children. *Journal of Experimental Psychology*, 9, 388-397.

Nationality	Foreign Language Ratio	Median IQ
German	20.1 to 100	102.3
Danish	31.6 " 100	98.0
Romanian Jew	39.7 " 100	101.9
Norwegian	49.2 " 100	99.5
Swedish	53.1 " 100	77.5
Bohemian	76.9 " 100	85.5
Austrian	77.8 " 100	90.4
Russian Jew	79.7 " 100	
Italian	86.4 " 100	
Slovak	88.4 " 100	
Finnish	97.4 " 100	

TABLE I

PERSISTENCE OF FOREIGN LANGUAGE COMPARED WITH INTELLIGENCE

Figure 4

Language choice with siblings, with peers, for academic purposes at school, and when alone, by Depth cohorts.

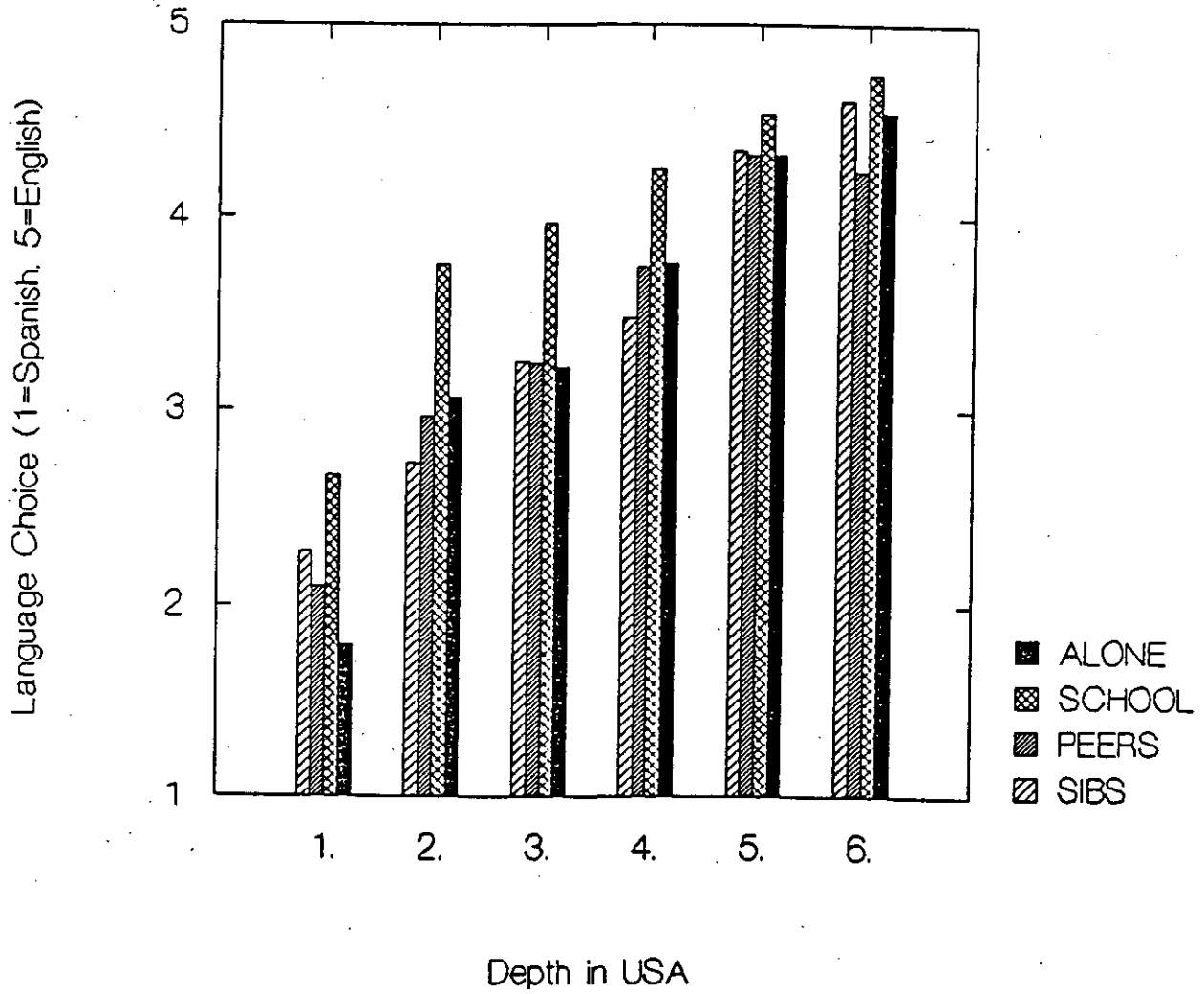


Figure 1. Mean Standardized Spanish and English language proficiency measures for six Depth cohorts. (Depth 1: Born in Mexico, arrived in the USA > 10 years old; Depth 2: Born in Mexico, arrived in the USA between the ages of 6 and 10 years old inclusively; Depth 3: Born in Mexico, arrived in the USA when 5 years old or younger; Depth 4: Born in the USA, both parents born in Mexico; Depth 5: Born in the USA, at least one parent born in the USA; Depth 6: Born in the USA, at least one parent and associated grandparents born in the USA.)

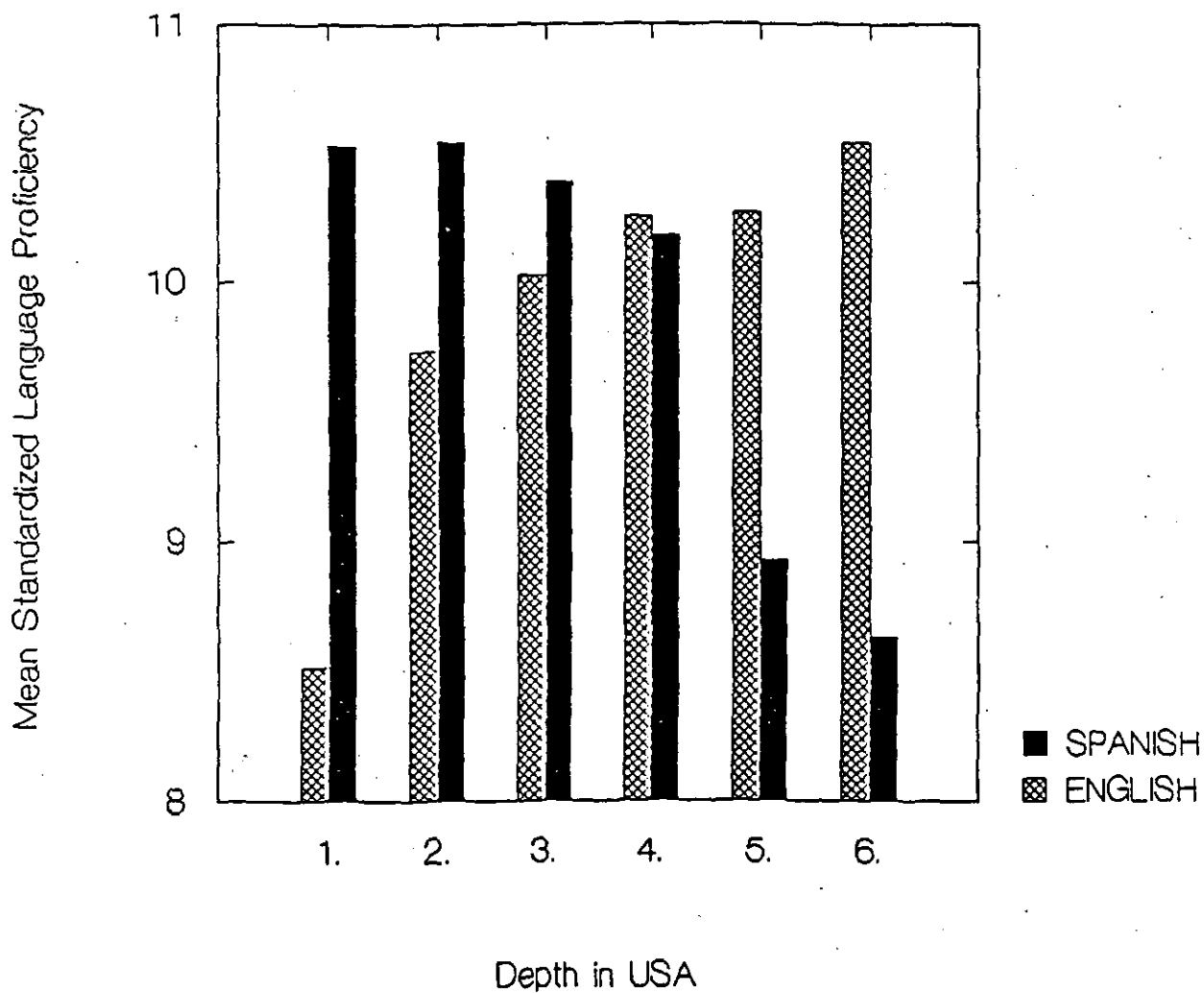


TABLE I

PERSISTENCE OF FOREIGN LANGUAGE COMPARED WITH INTELLIGENCE

Nationality	Foreign Language Ratio	Median IQ
German.....	20.1 to 100	102.3
Danish.....	31.6 " 100
Roumanian Jew.....	39.7 " 100	98.0
Norwegian.....	49.2 " 100	103.8
Swedish.....	53.1 " 100	101.9
Bohemian.....	76.9 " 100
Austrian.....	77.8 " 100	99.5
Russian Jew.....	79.7 " 100	98.0
Italian.....	86.4 " 100	77.5
Slovak.....	88.4 " 100	85.6
Finnish.....	97.4 " 100	90.0

Source: Goodenough, F. J. (1926). Racial differences in the intelligence of school children. Journal of Experimental Psychology, 9, 388-397.

"The rank-order correlation between foreign language ratio and IQ, as given above, is $-.754$, This might be considered evidence that the use of a foreign language in the home is one of the chief factors in producing mental retardation as measured by intelligence tests. A more probably explanation is that those nationality-groups whose average intellectual ability is inferior do not readily learn the new language." (pp. 392-393).