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THE CONTEXTUALIZATION OF SCHOOLCHILDREN'S BILINGUALISM*

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Two contextualized degree of bilingualism measures, one designed to assess the extent to which each language is used, the other to assess relative proficiency in the two languages, were administered to 34 bilingual children of Puerto Rican background who attended a parochial school in Jersey City The children reported that they used more Spanish, when talking to other bilingual Puerto Ricans, in the contexts of family and neighbourhood, than they did in those of education and religion Their relative proficiency scores were in general agreement with their usage scores the greatest difference between English and Spanish proficiency scores being observed for the domain of education and the smallest difference for the domain of family

In recent years there has been increasing recognition of the need to view bilingualism, not as a global capacity, but as one which could be described in terms of various components (3, 4) This view has led to the consideration that bilingual proficiency might vary over a range of social settings For example, a bilingual individual might be more proficient in one language when discussing matters of an academic nature and more proficient in another language when talking about household matters

Drawing upon this assumption, Cooper and Greenfield (1, 2) developed a series of instruments designed to measure degree of bilingualism in various domains or institutional contexts in which language behaviour occurs, e g , family, education, religion In the work reported in the present paper, two contextualized measures of degree of bilingualism were adapted for use with children One measure was designed to tap bilingual *proficiency* in each of several domains The other was constructed to assess the relative *use* of two languages in different settings The proficiency measure seeks to indicate what a bilingual individual *can* do The use measure seeks to indicate what that individual typically *does*

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METHOD

Subjects

The subjects tested were 34 children of Puerto Rican background who lived in the 'downtown' area of Jersey City, an area in which Puerto Rican bilingualism has been intensively studied (5) The children, whose ages ranged from 6 to 12 and who were evenly divided by sex, attended a parochial school within the neighbourhood All children had been born on the mainland

Procedure

The children were interviewed individually Each interview was tape recorded A modified version of a Spanish usage rating schedule developed by Cooper and Greenfield (2) for use with adults was administered to each subject The modified inventory consisted of a series of structured questions designed to assess the degree to which respondents used Spanish and English with various bilingual interlocutors in school, at church, in the neighbourhood, and at home to represent usage in the domains of education, religion, neighbourhood, and family, respectively For example, students were asked to indicate the extent to which they used Spanish with other Puerto Rican bilingual children when playing outside in the street near their home Following the administration of the Spanish usage rating scale the pupils were presented with a modified version of a word naming task developed by Cooper (1) for use with adults In the modified word naming task, subjects were asked to name, within 45-second periods, as many objects as could be found in each of four settings kitchen, school, church, and neighbourhood, to represent the domains of family, education, religion, and neighbourhood, respectively The children named objects for all four domains in one language and then named objects for all four domains in the other language Half the children first named the objects in English and the other half first named them in Spanish *

Scoring

Responses on the Spanish usage rating schedule were scored on a five-point scale, with the exclusive use of Spanish at one end of the scale and the exclusive use of English at the other A rating for the use of

*Due to a procedural error, the original scores of six subjects were lost, and these children had to be retested Mean score comparisons on the Spanish usage rating scale and the word naming task between the second scores of this group and the original scores of the other children of the same age and sex showed no differences The second set of scores of the six retested children were retained for the analyses that followed

Spanish across various interlocutors was computed for each subject for each setting or domain For the word naming test the number of different words produced in each domain in each language was counted for each respondent

Data Analysis

The children's responses on the Spanish usage rating schedule and on the word naming test were each subjected to an analysis of variance For the purpose of these analyses, *Ss* were divided into four groups based on the intersection of age (6-8, 9-11) and sex

RESULTS

Spanish Usage Rating Scores

The analysis of variance for the Spanish usage rating schedule is summarized in Table 1 A significant main effect was observed for domain ($p < 01$) That is to say, children reported that on the average, they used more Spanish in some domains than in others

TABLE 1
ANALYSIS OF VARIANCE OF SPANISH USAGE RATING SCORES

Source	df	MS	F
Between Subjects	33		
Age (B)	1	395 76	2 08
Sex (C)	1	152 46	80
BC	1	147 17	77
Error (b)	30	189 95	
Within Subjects	100		
Domain (A)	3	1242 54	15 98**
AB	3	20 00	26
AC	3	176 55	2 27
ABC	3	297 85	3 83*
Error (w)	88	77 75	
Total	133		

*$p < 05$ **$p < 01$

Table 2 shows the mean rating for the use of Spanish in each of the four domains Most Spanish was reported for family and least for education A Newman-Keuls test of the significance of the differences between the domain means indicated that the ratings for family and neighbourhood were significantly higher than those for education and religion There was no difference between the family and neighbourhood ratings and no difference between the education and religion ratings

TABLE 2
MEAN SPANISH USAGE RATING SCORE
(N=34)

Domain			
Education	Religion	Neighbourhood	Family
2 08	2 30	3 15	3 30

These findings are in general agreement with those of Cooper and Greenfield (2) who found that older children (ages 13-18) in the neighbourhood used less Spanish in the domains of education and religion and more Spanish in the domains of neighbourhood and family

Word Naming Scores

The analysis of variance of the word naming scores is summarized in Table 3 Significant effects were observed for age, domain, language, and for the interactions of language with domain, and of age with domain

TABLE 3
ANALYSIS OF VARIANCE OF WORD NAMING SCORES

Source	df	MS	F
Between subjects	33		
Age (C)	1	689 30	19 67**
Sex (D)	1	15 54	44
CD	1	87 87	2 51
Error (b)	30	35 05	
Within subjects	235		
Domain (A)	3	64 18	9 30**
Language (B)	1	123 13	11 11**
AB	3	21 71	6 66**
AC	3	20 51	2 97*
AD	3	96	14
BC	1	16 50	1 49
BD	1	42 08	3 80
ABC	3	8 00	2 45
ABD	3	2 23	68
ACD	3	4 51	65
BCD	1	14 62	1 32
ABCD	3	2 66	82
Error (w)	207		
$Error_1$ (w)	89	6 90	
$Error_2$ (w)	29	11 08	
$Error_3$ (w)	89	3 26	
Total	268		

*p< 05 **p< 01

The significant F for age indicates that word naming fluency (the number of words produced when both languages are combined) was

related to the age of the respondents, the older children producing more words This suggests a developmental trend of increasing proficiency (in terms of productivity)

The main effect for domain, on the other hand, indicates that when words given in both languages are combined, a greater number of words were produced in some domains than in others The mean scores for each domain were subjected to a Newman-Keuls test of significance The results showed overall language fluency for the domains of education, family and neighbourhood to be the same and superior to that for the domain of religion Thus, the first three contexts appeared to be equally salient for children as stimuli for the production of discrete lexical items, whereas the religious domain proved to be a less salient stimulus

TABLE 4
MEAN NUMBER OF WORDS NAMED BY LANGUAGE AND DOMAIN

	Domain			
Language	Education	Religion	Neighbourhood	Family
English	10 5**	7 7**	9 6**	9 0
Spanish	7 8	6 5	8 0	9 0

**p< 01 for difference between pairs of English and Spanish means

The significant effect for language indicates that, on the average, more words were produced in one language than in the other when all domains are combined, with the greater number of words being produced in English However, the significant language by domain interaction indicates that relative proficiency varied as a function of domain This variation can be seen in Table 4, which presents the average number of words named in each language and domain It can be observed that English was favoured over Spanish for the domains of neighbourhood, religion, and education However, with respect to the domain of family, no difference between the English and Spanish averages was observed

A ratio of language dominance was computed for the performance of each child in each domain The formula used was $\frac{1}{2}\left(\frac{S-E}{L}+1\right)$, where S=number of Spanish words produced, E=number of English words, and L=larger of the two numbers This formula yields a score which indicates the degree to which Spanish is dominant Spanish dominance scores can range theoretically from 0 to 1, with a score of 50 indicating 'balance'

The average language dominance ratios for the domains of religion, neighbourhood, family and education were 42, 42, 50, and 37, respec-

tively Thus, the greatest Spanish dominance was observed for family and the least for education These results correspond in general to those obtained from the Spanish usage rating scale (see Table 2) A difference between the two instruments, however, is found for the domain of neighbourhood In this domain children's self ratings indicated slightly more Spanish than English usage However, their performance on the word naming test revealed the opposite tendency

CONCLUSION

In this study of the language usage of bilingual children of Puerto Rican background, the children reported that they used more Spanish when talking to other bilingual Puerto Ricans in the contexts of family and neighbourhood, than they did in the contexts of education and religion Their relative proficiency scores were in general agreement with their usage scores The greatest difference between English and Spanish proficiency was observed for the domain of education and the smallest difference for the domain of family *

*These results were approximated by Gerard Hoffman with a group of 32 Puerto Rican children, aged 6-13, randomly selected from a parochial school in New York City Hoffman used the same modified versions of the word naming task and the Spanish usage rating scale, with the following modification The presentation of domain-related stimuli were randomized to eliminate the possibility of bias from a fixed order of presentation Both analyses of variance yielded the same significant main effects and interactions as in the original study (except for the triple interactions, inasmuch as Hoffman substituted a socioeconomic status rating for sex as one of the between-group variables) Hoffman s Ss gave significantly more English than Spanish words in each domain, with the smallest difference being observed for the domain of family The Spanish usage means of the two groups were quite similar, the same rank order being observed

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