

The Effect of Instruction in L1 on Receptive Acquisition of L2 for Bilingual Children With Language Delay

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This investigation compared the rate of receptive acquisition of English prepositions and pronouns for two groups of bilingual first grade children with language delays. Group A received instruction in Spanish prior to instruction in English, and Group B received instruction in English only. The results indicated that the subjects in Group A acquired the English prepositions and pronouns twice as rapidly as the subjects in Group B. These results support the interdependence hypothesis and the practice of language intervention in a child's native language (L1).

KEY WORDS: interdependence hypothesis, language threshold, native language intervention, L1, L2

The practice of first instructing bilingual children without handicaps in their native language (L1) is now well established as a result of Cummins's (1979, 1981) research, which indicates that instruction in L1 will facilitate acquisition of academic as well as linguistic skills in a second language (L2). Cummins's interdependence hypothesis contends that cognitive/academic language proficiency (CALP) prepares learners to manipulate language in context-reduced, academic situations. If, according to the interdependence hypothesis, a learner is given reading instruction in L1, the CALP acquired to become proficient in reading L1 will transfer to CALP in L2, thereby facilitating reading proficiency in L2. According to Cummins, an individual's native language must be developed to a certain level (threshold) in order to benefit fully from instruction in a second language. After the threshold has been reached, input from two languages is cognitively processed by a common underlying proficiency for both languages.

Support for the interdependence hypothesis is provided by Dulay and Burt (1980), who present evidence that basic interpersonal communication skills (BICS)—or language abilities at what Cummins calls the "surface level"—also will transfer between languages. Dulay and

Burt report that research in children's L2 acquisition documents striking similarities between the errors, transitional constructions, and acquisition sequences produced by first and second language learners. On the basis of their findings, they conclude that "L2 learners use their first language knowledge to help, rather than hinder, their use of the new language" (p. 8).

A recent article by Oller and Damico (1991) illustrates the relevance of Cummins's interdependence hypothesis to their model of language proficiency. In this article, the authors discuss the distinction between CALP and BICS, as well as the relationship of the two levels of language functioning to the common underlying proficiency and the threshold hypotheses.

Providing intervention in L1 for bilingual children with language handicaps is recommended by many writers (Gomes & Baird, 1983; Juarez, 1983; Mace-Matluck & Hoover, 1986; Mattes & Omark, 1984; Miller, 1984; Ortiz, 1984). This recommendation has been reached by extending the interdependence hypothesis from bilingual children who are developing language normally to children with bilingual language handicaps. In other words, if instruction in L1 facilitates the acquisition of L2 academic and language skills in normally developing children, then the same type of instruction should have the same effect on children with language handicaps.

Data to support this assumption derives from three single-subject design studies. Two of the studies deal with the Spanish and English languages (Garcia, 1983; Perozzi, 1985), and one deals with Spanish/English and Navaho/English (Kiernan & Swisher, 1990). Garcia and Kiernan and Swisher described their subjects as linguistically normal, whereas Perozzi's subjects included three preschoolers with language delays and three with normal language development. Acquisition of nouns in L2 (Perezzi, 1985), prepositions in L2 (Garcia, 1983), and novel stimuli in L2 (Kiernan & Swisher, 1990) was facilitated when the subjects were first instructed in L1. Although

these findings were interpreted in the three studies as support for the practice of intervention in L1 for bilingual children with language handicaps, more comprehensive research designs with a greater number of subjects are needed (Perozzi, 1985). The purpose of the present study was to investigate the effect of instruction in L1 on receptive acquisition of L2 for bilingual first-graders with language delays.

METHOD

Identification of Subjects

This study was conducted in a rural public school district in the El Paso, Texas, area. All 179 first grade students placed in the Bilingual Education Program on two campuses were evaluated using the Woodcock Language Proficiency Battery-Spanish Version (WLPB-Spanish) (Woodcock, 1981a) to determine if a language delay in Spanish was present. Language dominance had been established for each child by performance on the Language Assessment Scales (LAS) (Duncan & De Avila, 1983; De Avila & Duncan, 1987a, 1987b) and by information provided on a home language survey. The LAS was administered by school diagnosticians, and the home language survey was conducted by school officials in May of the kindergarten year. Data for the present study were collected in October and November of the first grade year. All children placed in the Bilingual Education Program had been judged to be Spanish language dominant.

The WLPB-Spanish (Woodcock, 1981a) was used to diagnose the presence or absence of a language delay in Spanish. It is a discrete point test, adopted by the school district for the assessment of oral language, reading, and written language. The WLPB-Spanish includes eight subtests: three measure oral language (picture vocabulary, antonyms-synonyms, analogies); three measure reading skills; and two measure written language. The WLPB-Spanish is used for grouping students according to their broad language needs and for determining language abilities. Administration of the WLPB-Spanish to Spanish speakers having English as a second language provides an overview of their Spanish language skills.

The WLPB-Spanish was normed in Costa Rica, Puerto Rico, Spain, Mexico, and the United States. A review of the manual (Woodcock, 1981b) provides strong evidence to support the psychometric integrity of the measure.

The only portion of the WLPB-Spanish administered to the subjects who participated in the current study was the oral language cluster. All three subtests of the cluster—picture vocabulary, antonyms-synonyms, and analogies—require a verbal response from the test taker. The picture vocabulary subtest is a measure of expressive language, requiring the test taker to identify pictures, objects, or actions. The antonyms-synonyms subtest measures the test taker's knowledge of word meanings. Performance on

the analogies subtest is dependent upon receptive language ability, but it also requires an expressive response.

Subjects

A total of 38 first grade students (16 boys and 22 girls) with a mean age of 6 years, 8 months participated in the study. Criteria for participation included Spanish as the native language, enrollment in a first grade bilingual classroom, and a standard score of 85 or less on the WLPB-Spanish oral language cluster ($M = 100$, $SD = 15$). Thus, all 38 subjects were at least 1 standard deviation below the mean.

The 38 subjects were separated randomly into two groups, Group A and Group B. The mean age for Group A was 6 years, 8 months, with a mean standard score on the WLPB-Spanish oral language cluster of 77 ($SD = 5.59$). The mean age for Group B was 6 years, 8 months, with a mean standard score on the WLPB-Spanish oral language cluster of 75 ($SD = 4.74$). A t test between mean scores was not significant [$t(36) = 1.37$, $p < .18$].

All subjects placed in Group A (10 boys and 9 girls) received instruction first in Spanish; only after receptive acquisition was attained in Spanish did they receive English instruction. Group B (6 boys and 13 girls) received English instruction only. Each child received instruction on an individual basis.

Stimuli

The prepositions and pronouns selected for instruction were depicted in line drawings. They were selected on the basis of their ease of translation from English to Spanish and on their ability to be clearly represented in line drawings.

After the subjects were selected, their ability to comprehend the prepositions and pronouns was tested in English and Spanish. Each subject was tested individually. The prepositions and pronouns were presented on a page that contained four stimulus pictures, one depicting the preposition or pronoun being probed and three foils.

The examiner presented the pictures, named one, and asked the subject to point to the picture that was named. The probe was administered first in English and then in Spanish. The same picture plates were used for both English and Spanish. Those that were identified correctly were retested to lower the probability that the initial correct response was due to guessing. Only those prepositions and pronouns erroneously identified in both languages were selected for instruction for that particular subject. Throughout the probe the subjects were not praised for right responses and were not corrected when giving wrong responses. Because only those prepositions and pronouns that a subject could not identify in both Spanish and English were selected for instruction, the number of instructional stimuli varied from subject to subject.

The prepositions and pronouns selected for instruction are presented in the Appendix. Group numbers represent the number of subjects who erroneously identified a particular stimuli in both English and Spanish prior to the learning task.

Learning Task

During instruction, the stimuli were presented to the subject in sets of four. The four pictures were placed in front of the child, and the examiner named the pictures while pointing to each one, using the appropriate language. Then the examiner named one picture and requested that the child point to that picture. The examiner requested this response to the target stimuli of each set in random order. Care was taken to shuffle the pictures to avoid placing the same picture in the same place, thus avoiding the possibility of a subject's learning a stimulus by its position. The same procedure was used in Spanish and English for Group A and in English for Group B. Subjects in Group A did not receive instruction in English until they had demonstrated comprehension (three consecutive correct pointing responses) to the stimuli presented in Spanish.

When the child responded correctly, the examiner offered verbal praise. When the child responded incorrectly, the examiner said, "No, this is _____," while pointing to the correct picture and renaming it. Renaming while reidentifying a stimulus was defined as a trial.

Receptive acquisition was defined as three consecutive correct pointing responses by the subject for each stimulus. Stimuli for which the criterion had been met continued to serve as foils during the learning of all four stimuli of a set. The number of trials (renaming and reidentifying of a target stimulus by the examiner) required to reach the criterion for receptive acquisition of each stimulus was computed for each subject. The mean number of trials each group required to meet the criterion of three consecutive correct responses in English was compared.

RESULTS

The 19 subjects in Group A were taught a total of 173 English prepositions and pronouns (a mean of 9.1 for each subject), whereas the 19 subjects in Group B were taught a total of 166 (a mean of 8.7 for each subject). The total number of trials to criterion was 244 for Group A and 511 for Group B. The mean number of trials to criterion was 1.41 for Group A and 3.07 for Group B. A one-tailed *t* test was significant [$t(36) = 2.27, p < .05$].

The total trials to criterion for Group A on the Spanish prepositions and pronouns was 104 ($M = .60$ for each stimulus); first-trial learning took place on many of the Spanish stimuli. When this figure is added to the 244 trials to criterion for the English prepositions and pronouns, it shows that Group A actually learned the prepositions and pronouns in both languages in fewer trials

(348) than did Group B in English (511). Each group's performance on individual words is presented in the Appendix.

DISCUSSION

Subjects who learned prepositions and pronouns in Spanish prior to instruction in English (Group A) learned them in English at a significantly faster rate than those subjects who learned them in English without learning them first in Spanish (Group B). In fact, the mean number of trials to criterion of 1.41 for Group A was less than half the mean number of trials to criterion of 3.07 for Group B. These data could be interpreted to mean that those subjects who were first instructed in Spanish learned in English twice as rapidly as those subjects who were instructed in English only. Furthermore, Group A learned the prepositions and pronouns faster in both languages than did Group B in English only. To paraphrase Kiernan and Swisher (1990, p. 712), one might say that Group A learned two words for less than the price of one.

The results of this study support the interdependence hypothesis in that instruction in L1 facilitated the learning of prepositions and pronouns in L2. The results also support the practice of intervention in the native language for children whose L1 is not English. However, there are variables other than the learning task that may have contributed to the relatively rapid learning of English stimuli by Group A. For example, affective variables, such as anxiety toward L2 and motivation to learn L2 (Krashen, 1981), are reported to influence the rate at which L2 is acquired. Prior researchers who have used learning tasks similar to the one employed in the current study (Kiernan & Swisher, 1990; Perozzi, 1985) reported that those affective variables may have played a role in subjects' learning of L2 words and novel stimuli. The same variables may have influenced learning in the current study. Furthermore, the fact that the subjects in Group A had been exposed to L1 prior to L2 may have lessened their perceived social distance toward the examiner and enhanced their performance. The examiner was a bilingual/bicultural master's-prepared speech-language pathologist employed in the school district in which the study was conducted.

Bruck (1982) noted that another variable related to L2 learning is "social psychological conditions." In her study of L2 acquisition by children with language handicaps and normal-language French- and English-speaking children, she found that children whose native language was of the "dominant prestigious culture" acquired L2 at a more rapid rate than those children whose native language was of the minority group. According to Bruck, minority language children may receive negative feedback from teachers, peers, and community members regarding their language competency; "... therefore their willingness and motivation to learn the [second] language are greatly reduced, resulting both in poorer L2 skills and academic failure" (p. 59). While Bruck inter-

prets her data as support for the interdependence hypothesis, she feels that social psychological conditions related to L2 acquisition are the key variables in the acquisition process.

In the current study, the procedure for selecting stimuli for each subject and the learning task itself were artificial and may have affected the results. Probing for unknown words prior to the learning task could have underestimated the subjects' knowledge of the prepositions and pronouns, although requesting a pointing response to verbally presented words is a commonly used procedure on tests of receptive vocabulary. On the learning task, a correct response after several repeats of a stimulus may have been the product of rote learning, rather than comprehension of the stimulus.

The reliance on discrete point tests such as the LAS to establish language dominance and the WLPB-Spanish to identify language delay is controversial (Erickson & Omark, 1981), although Damico (1991, p. 159) states that "The most popular assessment approach in special education today is a discrete point approach." Damico goes on to critique the discrete point approach and concludes that this approach is not effective when testing limited English proficient (LEP) children because the approach lacks construct validity. He recommends a descriptive approach to assessment of the LEP child that involves a synergistic perspective of language and communication. Communication is viewed as it functions holistically, and the focus of the assessment is on functional aspects of language usage. In Damico's approach to assessment, the evaluator does not rely on discrete point tests. The task of the evaluator is to determine the LEP child's communicative proficiency in terms of his effectiveness of meaning transmission, fluency of meaning transmission, and appropriateness of meaning transmission.

Kayser (1989) recommends that qualitative measures such as observations, interviews, and questionnaires be used as part of the diagnostic procedure for assessing language skills of LEP children. Standardized tests should be used only if the testing procedures are modified to accommodate the cultural-social values of the LEP student and the test instrument is adapted to include culturally appropriate test stimuli. Naturally elicited language samples also should be taken as part of the diagnostic battery.

The procedure for selecting subjects for the current study does not adhere to the guidelines for assessing communicative abilities among LEP children as recommended by Damico (1991) and Kayser (1989), although language dominance was determined through use of a home language survey in conjunction with the LAS. In addition, the diagnosticians who administered the LAS and the speech-language pathologist who administered the WLPB-Spanish were all bilingual/bicultural employees of the school district in which the study took place. It would be reasonable to assume that the examiners' appreciation of the linguistic-social-cultural values of the community would enhance their interaction with the children during testing and, perhaps, maximize the validity of the testing. It would seem, however, that future

studies involving LEP children should minimize the use of standardized tests and incorporate the recommendations of Damico and Kayser when assessing language abilities.

Despite methodological limitations related to the lack of control for affective variables, the artificial nature of the learning tasks, and the selection of subjects, the results of the current study are consistent with the results of prior research (Bruck, 1982; Garcia, 1983; Kiernan & Swisher, 1990; Perozzi, 1985). It appears that a level of competence in L1 (threshold) does facilitate the acquisition of L2. Presumably, this hypothesis would hold true in naturalistic settings. If so, the evidence to support intervention in L1 for bilingual children with language handicaps would be substantial. Intervention in L1, followed by intervention in L2, also would provide the child with the advantage of acquiring language components in both the native language and a second language.

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APPENDIX

Prepositions and Pronouns

English	Spanish	Group	
		A	B
1. in front of	enfrente de	13	8
2. above	encima/sobre	7	10
3. on	en	14	14
4. between	entre	17	18
5. under	abajo de	1	2
6. behind	atrás/detrás	6	6
7. through	por	11	14
8. beside	al lado/junto de	16	15
9. in	adentro	0	0
10. down	abajo	2	6
11. up	arriba	2	1
12. out	afuera	9	5
13. around	alrededor	6	7
14. you	tú	7	5
15. I	yo	9	9
16. she	ella	7	8
17. he	él	5	3
18. they	ellos	8	11
19. we	nosotros	11	8
20. her (it belongs to her)	es de ella	13	11
21. him (it belongs to him)	es de él	9	5
		173	166

Group numbers represent the number of subjects who could not correctly identify a stimulus in either English or Spanish.