AN EXPERIMENTAL APPROACH TO LANGUAGE TRAINING IN SECOND LANGUAGE ACQUISITION: FOCUS ON NEGATION

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The effect of negation training in a second language on the expression of negation in the native language was investigated. Four-year-old children from bilingual (Spanish/English) homes who showed no expressive or receptive ability in Spanish negation and were either proficient or nonproficient in English negation received Spanish negation training. Children who were proficient in English negation maintained correct responses in English and showed increased correct responses in Spanish following simultaneous training in both languages or in Spanish alone. Children who were nonproficient in English negation demonstrated a decrease in correct English responses following training in Spanish alone; however, children who received training in English and Spanish simultaneously showed increases in correct responses in both languages. These findings suggest that language training programs with children learning a second language should consider the relationship of the two language training conditions (simultaneous vs. independent) with the child's level of native language proficiency.

DESCRIPTORS: children, classroom, language training

Psychologists and educators have become concerned with the educational implications of learning more than one language during the developmental years. One critical issue in early childhood second language research is that of language transfer (Saville, 1971). If transfer effects exist, are they inhibitory or facilitative? Garcia (1977) reported that as Spanish prepositional expression was acquired by 3- and 4-year-old English monolinguals, correct English prepositional use decreased. Similarly, it is possible that the requirements imposed on a child with respect to acquiring a second language may lead to the use of structures in the native language that had been acquired in the sec-

ond language. Spradlin and Dixon (1976), for example, showed that when subjects were taught to respond to one member of a stimulus class then other nontrained members of that stimulus class elicited the same response.

Madrid and Garcia's (1981) analysis of second language acquisition suggested that children's performance in English (the second language) reflected Spanish language constructions. Performance on Spanish negative constructions across three dependent measures remained high at 100% correct. Because all Spanish speakers in the Madrid and Garcia study were fluent in Spanish but not in English, it was reasonable to hypothesize a "bilingual proficiency" mediating variable. Experimentally, it may be desirable to consider the effects of bilingual proficiency and language transfer during acquisition, in which manipulation occurs with one language and the effect of that manipulation on the second language is simultaneously measured.

Our study provides an experimental analysis of transfer effects in relation to language proficiency with children from Spanish/English bilingual or home environments by examining the effects of negation training in both languages versus in a second language only.

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METHOD

Subjects and Assignment to Conditions

Ten male and 14 female children from Spanish/English bilingual home environments, who lacked receptive and expressive competence in the use of negation in Spanish, participated. The children ranged in age from 4 years 1 month to 4 years 3 months, and were students at a local preschool. Children were assigned to one of three groups: Simultaneous L_1 (native language) and L_2 (second language) training, Independent L_2 training (i.e., in Spanish only), and control. Each of these groups was comprised of four children who neither understood nor spoke Spanish but were proficient in English and four children who neither understood nor spoke Spanish and were nonproficient in English. Proficiency was defined according to the Language Assessment Scales I (DeAvila & Duncan, 1977). This measure provides an index of oral linguistic proficiency in Spanish and English based on a child's performance across four linguistic subsystems.

Stimuli

Eight pairs of toys were used for training and an additional 16 pairs used for probes. Training and probe stimuli were similar but different. For example, a red truck with wheels and a red truck without wheels were used for training; a yellow car with wheels and a yellow car without wheels were used for probe sessions.

Probes

Probes were administered to each child prior to training (pretests), and thereafter following each of the eight training sessions (posttests) on 2 consecutive school days. For children in the Simultaneous L_1 and L_2 training condition, 16 probe trials were given, eight trials in Spanish and eight trials in English. All items were randomly ordered for each probe session. Probe items were presented as follows: Each child was first shown a complete toy (e.g., a car) and then an identical toy that was not complete (e.g., a second car with its wheels removed). The two toys (i.e., the complete and iden-

tical incomplete toy) were placed in front of the child on the table. The experimenter pointed to the complete toy and stated "This is a car with wheels," and then pointed to the second car without wheels and asked, "What is wrong with this car?" Following a response, or after a 10-s interval if the child did not respond, the procedure continued with the next pair of toys. All gestures of approval or disapproval following correct or incorrect responses were withheld.

Experimental Conditions

Simultaneous L_1 and L_2 training. Children were given eight training trials in Spanish (L_2) and eight training trials in English (L_1). The order of language presentation (Spanish or English) for each child was randomly determined. Each child was shown a complete toy (e.g., car) and an identical toy that was not complete (e.g., a second car with its wheels removed), which were placed in front of the child on the table. The experimenter pointed to the complete toy and stated, "This is a car with wheels." He then pointed to the second car without wheels and asked, "What is wrong with this car?" If the child did not respond within 10 s, s/he was asked to repeat the experimenter's model, "It does not have wheels." The child was praised for correct responses or correct imitations. In English trials all comments were English and in Spanish trials all comments were in Spanish.

Independent L_2 training. Training was identical to the Simultaneous L_1 and L_2 condition except that all training was restricted to Spanish, and children were given only eight training trials during each session.

Control condition. The eight children who served as control subjects were given the language pretest and posttest probes in the same manner as the children in the experimental conditions, but did not receive training.

Recording and Reliability

Children's responses were scored as correct or incorrect. A correct English response was defined as an English statement that contained the "do" transformation and appropriate auxiliary (e.g., "It

doesn't have wheels') or other English phrases in which the negative element (no, not) followed the verb in the absence of the "do" transformation (e.g., "There are *not* any wheels"). A correct Spanish response was defined as a Spanish statement in which the negative element (no) preceded the verb phrase (e.g., "*No* tiene llantas").

All responses were recorded on cassette to allow for computation of interobserver reliability for 100% of the training and probe sessions. An agreement was scored if the two independent observers recorded the same response and both marked it as correct or incorrect. Reliability was calculated by dividing the total number of agreements by the number of agreements plus disagreements and multiplying by 100. This yielded an average agreement score of 93% (range, >75%–100%).

RESULTS

Figure 1 shows the results for subjects who were proficient in English. When simultaneous training in both languages was introduced, the children maintained their baseline levels of performance in English at 100% correct responses. Correct responses in Spanish increased from 0% during baseline to 100% within four sessions following training. Similar results were obtained with the four subjects, proficient in English, who received training in Spanish only (Independent L₂). Results for control subjects show that correct English responses remained high at 100% while correct Spanish responses remained at 0% correct.

Results for subjects who were nonproficient in English (Figure 2) show that when simultaneous training in both languages was introduced, correct responses in Spanish increased from 0% to a mean of 40% on the posttests (range, 0%–77%). Responses in English increased from 50% correct to 100% correct. For subjects who received Independent L₂ training in Spanish, correct responses in Spanish increased from 0% correct on the pretests to a mean of 68% on the posttests (range, 63%–73%). However, the percentage of correct responses in English decreased from a mean of 50% on the pretest (range, 49%–52%) to a mean of

30% on the posttests (range, 14%–47%). For control subjects, Spanish responses remained at 0% correct and correct English responses remained stable at baseline levels.

A qualitative analysis of expressive responses in English and Spanish indicated that, for the nonproficient English speakers, 95% of the response errors in Spanish were of an interference nature. Subjects gave such responses as "No have wheels," or "No has a hat." In addition, 100% of the errors in Spanish for nonproficient English speakers took on characteristics of English language productions. Utterances such as "It no tiene llantas" were given. The incorrect responses of the proficient English speakers, on the other hand, were not of an interference type but took the form of incorrect English grammatical constructions (e.g., "It ain't has a hat").

DISCUSSION

This study offers an experimental analysis of second language transfer in relation to first language proficiency in preschool children. The results show that: (a) nonproficient English speakers did not reach 100% correct responses on Spanish expressive probes with either Simultaneous L₁ and L₂ or Independent L₂ training; (b) although subjects who were nonproficient in English and were trained in Spanish only (Independent L₂ condition) demonstrated an increase in correct Spanish responses, this was accompanied by a concomitant decrease in correct English responses; and (c) only those subjects who were proficient in English negation demonstrated maintenance of 100% correct English responses as well as increases to 100% correct Spanish responses following simultaneous training in both languages or in Spanish alone (Independent L₂).

It is important to point out that the training of Spanish negative constructions with specific stimuli had a generalized effect. Because the subjects responded to training items and probe items in the same manner, it seems appropriate to conclude that generalization occurred from trained to non-trained instances of Spanish and English negative

Figure 1. Percentage of correct responses on pre- and posttraining probes for proficient English-speaking children.

constructions. During Independent L₂ training for nonproficient English speakers, a form of linguistic disruption was identified. The nonproficient English speakers demonstrated an increasingly high number of errors during probe trials that were in the form of language substitution (language transfer). These errors may reflect the exposure to the two languages under different levels of first language proficiency.

With respect to language teaching strategies, we suggest that language training programs with populations of children learning a second language consider the relationship of the two language training conditions (simultaneous vs. independent) with the child's level of native language proficiency. In our study, effects that may be termed "interference" were observed within a language training context in which L₁ proficiency was low. This ex-

Figure 2. Percentage of correct responses on pre- and posttraining probes for nonproficient English-speaking children.

perimental work is related to present arguments in the education arena that are concerned with “transition” vs. “maintenance.” It is likely that “transition” programs are likely to produce linguistic transfer of the form shown in this study.

The results must be viewed within the context of certain limiting factors. The small sample size in each group limits the extent to which conclusions can be generalized. In addition, the method

of eliciting responses by use of an artificial task raises questions as to the implications of the findings for natural settings. Future research may address the generality of the findings reported here by focusing on additional language parameters (e.g., adjective/noun sequences). Also, data gathered in natural settings may yield information that more accurately reflects spontaneous verbal negative constructions.

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