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ABSTRACT

The development of "Carrascolendas," a television series devised for Mexican-American children, is summarized. Emphasis is placed upon strategies for evaluation. Evaluation evidence indicates that "Carrascolendas" may be an alternative or an addition to the Sesame Street approach to dealing with the education of the disadvantaged. (MS)

EVALUATING CARRASCOLENDAS: A TELEVISION SERIES FOR MEXICAN-AMERICAN CHILDREN

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EVALUATING CARRASCOLENDAS: A TELEVISION SERIES FOR MEXICAN-AMERICAN CHILDREN

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With the apparent success of Sesame Street, considerable public interest has been focused upon the use of public television for advancing the education of young children. At the same time, considerable attention has been aroused in educational and research circles on the processes involved in the development and evaluation of such television programs. Unlike many of the earlier studies of instructional and educational television where the interest was in comparing television with some other medium of instruction, the emphasis here is on such specific questions as: How can a program series be best designed to achieve specific educational aims, and how can we most objectively evaluate such achievement? The present report is a case study of Carrascolendas, a television series developed for Mexican-American children in the southwest United States. The development of the program series is summarized, and special emphasis is placed upon strategies for evaluation.

The program concept for Carrascolendas was developed with an eye toward the recognized need that Mexican American children have for seeing themselves as existing in a bicultural

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and bilingual social environment. Traditionally few educational television materials have been specifically developed for use with a child who is bilingual in English and Spanish. Moreover, except for character roles, television seldom reflects the existence of such minority group populations, let alone adapts its messages to them. It has been felt that the Mexican-American child suffers the dual disadvantage of seldom seeing a positive image of persons such as himself in media, and he experiences few media which serve him as an individual. Based upon this broad need argument, Carrascolendas was developed as a special component of an existing program of bilingual instruction funded in the Austin, Texas area under the Bilingual Education Act (Title VII). The primary audience envisaged for the television series was the same as the target group for the bilingual education program--that is, bilingual children of Mexican-American descent in the first and second grades.

Consonant with the aims of the existing bilingual education program, the general goal of Carrascolendas was to facilitate the children's knowledge gains in selected first and second grade content areas, and to increase their usage skills in both the English and Spanish languages.

PROGRAM DEVELOPMENT

Instructional Objectives

Beyond the initial proposal for the series, the program development of Carrascolendas was primarily a joint effort of a team of educators who prepared instructional objectives and

a television production team who translated these objectives into scripts and eventually into the series itself. A lesser but still important early role was played by the evaluation team who reviewed instructional objectives in terms of their potential observability and measurability. It was from these instructional objectives that the evaluation team eventually developed test items used to assess the effects of the program upon the target population.

Instructional objectives were developed within five broad "knowledge" categories. In each of these categories, some of the objectives were carried out exclusively in Spanish, and others exclusively in English. The following list of sample test items from the evaluation instrument illustrates both the five broad categories and the kinds of objectives included within each of them:

1. Multicultural Social Environment

   English:

   Is it good to know how to speak English and Spanish? Why?

   What do you do at home to help your mother?

   Spanish:

   ¿Cuántos hermanitos tienes? (How many little brothers do you have?)

   ¿Cómo se llama tu mejor amigo? (What is your best friend's name?)

2. Language Skills

   English:

   Whose shoes are those? (Pointing to child's own shoes)

   Ask me if I have shoes.

Spanish: (Vocabulary)

¿A quién llamamos cuando hay una quemazón? (Who do we call when there is a fire?)

Dime una palabra que empieza con el sonido /m/. (Tell me a word that starts with the sound /m/.)

3. Numbers and Figures (Given pictures)

English:

Put a circle around the sets of threes.

Which shape looks most like a tortilla?

Spanish:

¿Son todos estos números? ¿Qué más hay? (Are all these numbers? What else is there?)

¿Hay más letras or más números? Cuenta los números. (Are there more letters or more numbers? Count the numbers.)

4. Physical Environment

English:

Do you know where bread comes from? Where?

When you go on a trip far away, how do you go?

Spanish: (Given pictures)

¿Qué es ésto? [elefante] (What is this? [elephant])

¿Dónde vive el elefante? (Where does the elephant live?)

5. Concept Development

English:

What do you wear so you don't get cold?

When we drop the rock and the tissue on the table, which makes a louder noise?

Spanish:

¿Eres tú más chico que tu papá? ¿Cuándo vas a ser tan grande como él? (Are you smaller than your father? When are you going to be as big as he is?)

¿Cuántos ojos tienes? (How many eyes do you have?)

Series Materials

Based upon instructional objectives a thirty half-hour program series was developed. Individual programs were comprised of segments ranging in duration from twenty seconds to six minutes. Each of these segments was developed to carry out a specified instructional objective or multiple objectives. An attempt was made to balance the English and Spanish language segments within each program unit.

Continuity for the series was based upon "Carrascolendas" being a mythical town in South Texas inhabited by the program's principal figures. Among these were "Señorita Barrera" and "Señor Villarreal" who often provided introductory and closing materials for each program. Other characters included "Agapito," a mischievious lion; "Marieta," a young girl; "Don Pedro," a housepainter; and "Mr. Jones," the owner of a hamburger stand. All of these characters, with the exception of Mr. Jones, had both English and Spanish-speaking roles in various segments. Mr. Jones spoke only English. This cast was regularly augmented by two bilingual puppets, "Ruperto" and "Manolin." In addition to these principal figures, many other characters appeared once or twice during

the series, and included among these were prominent Mexican-Americans from the central Texas area who appeared in "cameo" roles.

A typical program might include the following: A brief skit such as one which finds Marieta attempting to teach Agapito how to make tortillas, emphasizing the fact that they must be round. A direct instructional segment, such as one where Don Pedro pronounces a Spanish vowel in isolation and then, with the use of picture cards, gives examples of names of objects that begin with that vowel. A third segment would include a children's song, usually in Spanish, set into the context of a skit involving the principal characters. The concept of sharing might be brought out in a puppet sequence where Ruperto and Manolin attempt to share the same umbrella. Interspersed might be direct drills on letters or numbers, similar to the Sesame Street "commercials." Some segments were repeated within the same program. In all, it could be generalized that the program, in being created for a bicultural audience was itself markedly bilingual and bicultural.

The 30 programs were broadcast from 10:00 to 10:30 on Monday, Wednesday, and Friday during the period of February through April, 1971. The broadcast was intended to reach viewing audiences of KLRN (Channel 9) in the Austin and San Antonio areas, and via cable to South Texas. Within this large potential viewing audience, the primary audience was defined as Mexican-American school children.

RESEARCH DESIGN

The principal evaluation of the series was in terms of

an in-school experiment where children who were divided into viewer and nonviewer groups for the duration of the series, were given tests with items derived from the instructional objectives of the program, and where comparisons of the viewer and nonviewer groups were used to interpret the effects of the series. A series of secondary evaluations, which will not be described here,[1] included a survey in the viewing area of KLRN to see how many schools were using the series, a questionnaire administered to teachers who were using the series in their classrooms, and a diary evaluation completed by selected teachers. The experimental research, the main evaluation, is next described.

Subjects

Selection of children to serve in the experiment represented a compromise between two criteria. One criterion was that the children be representative of the larger population of first and second grade Mexican-American children who were the target audience for the program. A second criterion was that these children could be tested in an environment that could be sufficently controlled for purposes of the experiment. Accordingly, the experiment was centered in an elementary school in the Austin, Texas area which was presumed to have a range of children most representative of the Mexican-American population. Instruction in this school included the bilingual approach with bilingual teachers and materials as well as traditional classes taught entirely in English. Children from first and second grades, and within these grades from bilingual and

traditional classrooms, were randomly selected for assignment to viewer and nonviewer groups. Given this sampling, it was eventually possible to make overall comparisons of viewers with nonviewers, then to see the generalities of these comparisons across first and second grades, across bilingual and traditional classrooms, and in interactions of these combinations.

Altogether, 88 children were initially included in the study, 48 in the viewer group, 40 in the nonviewer group. The subdivisions by grades and bilingual and traditional classrooms were approximately equal in size. All children in these samples were of Mexican-American descent and were known to exercise some degree of bilingualism. Within the groups, however, there was heterogeneity in terms of academic capabilities, degree of dominance in either the Spanish or English languages, and the length of time that the family had lived in the city.[2]

Materials

The basic testing strategy for the research was an individual interview format between a fieldworker and a child. Each lasted approximately 35 minutes, covered test items selected from among the behavioral objectives, was conducted in only one language at a time, and was designed to maximize the performance of the child. Test items were developed by sampling approximately equally from the behavioral objectives for the five knowledge areas of the program. One 35-minute test sequence consisted of Spanish items and was designed for an interview entirely in Spanish. The other included only English items and was designed to be conducted entirely in English. For the most part, items on the Spanish and English tests for

a given area (e.g., "multicultural social environment") were different. Thus a set of subtests in the five knowledge areas yielded ten scores, five on Spanish and five on English items. Additionally, total knowledge scores were calculated across English and across Spanish items.

A child's response to each test item was also rated in terms of his language usage. A high rating reflected fluency and an absence of mixing the two languages in a given response. These ratings yielded two "language usage" scores for each child, one each for Spanish and English.

Procedures

Pre-testing. Prior to the broadcast of the series, each child was given two pre-test interviews, one entirely in English and a separate one entirely in Spanish. These interviews were conducted by Anglo-American, monolingual interviewers for the English version, and Mexican-American, Spanish-and-English-speaking interviewers for the Spanish version. Several weeks prior to the interviews, all interviewers spent regular amounts of time in the children's classrooms as teachers' assistants to acquaint the children with the interviewers, and to increase potential rapport in the interview situation.

Based upon a master schedule of interviews, children were taken individually from the classroom to an interview station, where a variety of informal remarks in the language of the interview were used as warm-up. Subsequently the interviewer followed a predetermined schedule of questions in eliciting the child's responses to the individual test items. These

responses were tape recorded, and at a later date were tabulated for the calculation of knowledge and language-usage scores. Approximately half of the children had their English interview before the Spanish one and vice versa, so as to avoid order effects. The two interviews conducted with each child were separated by a period of several days. At the conclusion of each interview, the interviewer told the child that he had done a fine job and awarded him a small gift.

Viewer and nonviewer treatments. During periods when the program was broadcast, children who had been selected for the viewer group were moved from their classrooms to a central viewing area, while the children who served in the nonviewer group went to another area of the school. The viewing group received selected warm-up activities prior to the program, viewed the program, then usually engaged in follow-up activities before returning to their classroom.

Children in the nonviewer group were provided with an alternative activity in the form of a photography project. During the periods that the other children were viewing the program, children in the nonviewer group met with a teacher, several aides and a photography instructor. The children were given an opportunity to use cameras, to photograph themselves and their school environment, and to discuss their pictures when they were developed and returned at a subsequent meeting. It was deemed important that these children participate in an activity of high interest to them, lest they or their parents react negatively to their being excluded from the viewing group.

Post-testing. After the program series, children underwent a series of post-test interviews conducted in the same manner as the pre-test interviews. These were again administered on an individual basis, with separate interviews in Spanish and in English, and scores for the knowledge and language areas were again tabulated.

Analyses. The main focus in the data analyses was upon differences in mean post-test scores in comparisons of the viewers and nonviewers, and whether these differences varied further as a function of grade level or type of classroom. These analyses were conducted on each of the 14 scores (10 subtest, two total, and two language usage). The statistical analysis model was analysis of covariance which incorporates pre-test scores as a means for mathematically equalizing group differences which may have existed prior to viewing the series. Statistical significance was judged upon the basis of the finding that there was less than a 5% probability that the differences between or among mean scores could have occurred by chance.[3]

RESULTS

Table I presents a summary of the mean score comparisons which were the chief focus in the analyses. In this table asterisks mark the mean comparisons which were statistically significant.

Table 1 near here

Knowledge Effects

As can be seen in Table I, there was a statistically

significant difference between viewer and nonviewer groups in total knowledge scores for English tested items, but not for Spanish tested items. The difference on the total scores in English items was constrained by the finding that only on subtest mean scores of multicultural social environment, physical environment, and cognitive development did the viewer and nonviewer groups differ significantly. In brief, the effects upon knowledge objectives from viewing Carrascolendas were restricted to these areas.

By contrast, on the Spanish-tested knowledge subtests there were no statistically significant differences between viewer and nonviewer groups. In short, viewing Carrascolendas did not appear to have any significant effects upon knowledge objectives in the Spanish tested areas. It can be noted that on these Spanish items the mean scores for viewers typically exceeded those of nonviewers, and that sometimes this difference appeared as great as between mean scores which were significantly different for the English items. The statistical explanation for the lack of significant differences is that there were substantially greater individual differences in performance on the Spanish items as compared with the English ones. Thus relatively greater mean differences would have to be obtained in order to have significant differences. In all, although mean differences did favor viewers of Carrascolendas on the Spanish test items, we cannot say that these were any more than chance differences.

A second question in the analyses was whether differences

between viewer and nonviewer groups would have generality across grade levels and the bilingual and traditional classrooms. The analysis of covariance results revealed only one case where interpretation of viewer-nonviewer differences was dependent upon a further variable. This was in the case of viewer-nonviewer differences on the English tests of multicultural social environment. Here the differences were statistically significant for second graders (viewers = 111.6; nonviewers = 105.7) but not for first graders (106.1; 105.7). With this exception, it was concluded that the effects of viewing Carrascolendas had generality across the two grades and two types of classrooms.

Language Usage

Table I also shows mean differences for scores based upon ratings of language usage. Statistically significant differences favored the viewer groups for both English and Spanish language ratings. Thus it could be concluded that viewing the program had an effect upon the child's fluency and single language consistency in the speech situation. Similar to the analyses of the knowledge scores, the viewer-nonviewer differences in language usage had generality across the grades and types of classrooms.

IMPLICATIONS

Generalizations

Knowledge effects. A first generalization was that the knowledge effects of Carrascolendas were restricted to specific areas--multicultural environment, physical environment,

and cognitive development-- and to English related items. There was a marked contrast between these and the lack of significant effects in the Spanish-related items. One speculation was that the children did maximally well in the pretests in Spanish as compared with English, thus a ceiling effect prevented them from showing significant gains in Spanish. Inspection of the scores in terms of the gross percentage aspect does not reveal this contrast. Another speculation was that these children are living in an area where English is demanded of them, thus they are more receptive to new knowledge in the English language content areas. Also there has been some evidence that teachers' follow-up discussions with the children about the program more often emphasized the English rather than the Spanish material. If the results of this research are used for diagnostic purposes, one major implication is that subsequent versions of the series should place more emphasis upon Spanish knowledge areas.

Language usage. A second main generalization is that viewing Carrascolendas appeared to have a definite effect upon a child's fluency of usage of Spanish or English in the interview situation. It should be borne in mind, however, that language usage may have been partly influenced by the type of knowledge items that the child was answering. Thus, for example, if a child were uncertain in his answer he would probably be reticent, resulting in an effect on his language score. It does seem clear, however, that children who viewed the program were generally more fluent in the post-series

interview situation, and such fluency in view of the bilingual emphasis of the program represented a desirable effect.

Independence of effects. One final main generalization is that the effects of viewing Carrascolendas appeared to have substantial generality across grade level and type of classroom. That viewing effects are independent of the child's grade and type of classroom, suggests a number of interpretations. One of these is, of course, that the effects may be quite closely associated with the program itself rather than with its interaction with classroom activities. A critical point, however, is that the test items used in the evaluation were drawn directly from the program's instructional objectives. Thus, to the extent that the program's instructional objectives are independent of the ongoing instructional objectives in the classroom, the more its evaluation will show effects independent of the classroom. Nevertheless, there is good reason to believe that Carrascolendas would be effective for the child who is viewing it in the home environment.

In the most general view, the effects point to a type of program that may be seen as an alternative or addition to the Sesame Street approach in dealing with the education of the so-called disadvantaged in the United States. Whereas Sesame Street attempts an overall programming strategy that will generally benefit children of all ethnic groups and regions of the United States, Carrascolendas represents an attempt to serve one specific population. To reflect upon the needs of the Mexican-American child that were stated at the outset,

Carrascolendas not only gives the Mexican-American child a program in which he and his ethnic group are represented, but these media in an educational sense are adapted directly to the needs and attitudes of that child. In a sense, this represents instructional material consonant with a more recent philosophy of getting the school ready for the child, rather than the older war-on-poverty philosophy of only getting the child ready for the school.

* * *

FOOTNOTES

[1]See Diana S. Natalicio and Frederick Williams, "Carrascolendas: Evaluation of a Bilingual Television Series," (Austin, Texas: Center for Communication Research, 1971). This is available through E.R.I.C. as document ED051680.

[2]It is well-known among educators and researchers in the Southwest that Mexican-American children who live in rural areas are more Spanish dominant than children, say, of second generation parents living in urban areas. Urbanization seems to influence not only the degree of bilingualism, but eventual dominance of English over Spanish.

[3]Space limitations prevent the inclusion of all the summary tables for analyses of covariance. This may be found in the technical report of the project cited in footnote 1.

TABLE I

Mean Scores on the Post-tests After

Corrections for Pre-test Differences

Tests	English Items		Spanish Items	
	Viewer	Nonviewer	Viewer	Nonviewer
Total Knowledge	489.6	473.3*	592.3	575.9
Multicultural Social Environment	108.6	105.2*	122.6	116,8
Language Skills	151.0	146.2	200.2	194.6
Numbers and Figures	65.3	63.6	119.6	118.7
Physical Environment	33.5	31.5*	21.6	20.6
Cognitive Development	130.8	126.7*	128.4	125.14
Language Usage	459.4	435.8*	521.1	492.7*

*indicates statistically significant ($p<.05$) difference between viewer-nonviewer means.