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ABSTRACT

A study of patterns of cue selection strategies in relation to field dependence and independence in the reading of Greek-English bilingual children is reported. The study investigated (1) possible differences in the oral reading strategies used while reading English as compared to Greek, and (2) possible differences in those strategies for field-dependent and field-independent children reading both English and Greek. The subjects were 12 second-grade students in a transitional Greek bilingual program. They read aloud unfamiliar stories from their English and Greek basal readers, each of sufficient length and difficulty to generate at least 25 miscues. The readers then retold as much as they could remember and responded to probe questions. The miscues, coded and analyzed, provided oral reading strategy profiles for Greek and English in each subject. The results show consistent distinctions between the field-dependent and field-independent subjects across languages and in eight of the ten miscue categories. Two categories, grammatical acceptability and semantic acceptability, did not reflect the same parallelism. All made more miscues and tended to depend more on graphophonic and grammatical cues while reading in Greek, tending to be more aware of semantic cues while reading in English. Implications for instruction are discussed. (MSE)

ORAL READING AND COGNITIVE STYLES OF GREEK BILINGUAL CHILDREN

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Research related to reading instruction in bilingual education has basically centered on the initial language to be used Engle,1975). Recently, studies have appeared in the literature that discuss the cognitive styles (modes of attending, perceiving, remembering and thinking) of bilinguals and indicate how cognitive style may affect their ability to learn to read in English (Hodes, 1976; Barrera, 1978; DeSilva, 1978; Eaton, 1979; Spiridakis, 1982).

Readers are active participants in the reading act - their thought and language cue not only their expected responses (printed words), but also their observed responses (deviations from printed words). This consideration leads one to conclude that readers' miscues, or deviations from print are not random. They use the interrelated cue system of language (graphophonic, syntectic and semantic) in conjunction with their background knowledge to construct meaning from print (K. Goodman, 1965). The ways in which readers employ these cue systems when reading orally may be referred to as their oral reading strategies.

Field-dependence/independence is one dimension of cognitive style orientation that may influence how the reader processes print and derives meaning from it. Witkin et al. (1962) have employed the terms field-dependence and field-independence to explain the extent to which a person perceives analytically and overcomes an embedding context. Field-dependence refers to the

mode of perception at one extreme of the performance range where the prevailing field strongly dominates perception (global). Such an individual would tend to perceive a word in its entirety while reading. At the opposite end of the performance range lies the mode of perception referred to as field-independence where items are experienced as more or less separate from the surrounding field (analytical). In principle, this individual would tend to be more successful than his field-dependent counterpart in being able to break down an unknown word into its phonetic parts while reading.

When individuals approach a reading task, they are confronted with a situation of response uncertainty (Smith, 1978). As a means of reducing this uncertainty, the readers impose their own organization upon the task. They select only what they need from the cueing systems in order to construct meaning from print. Their selection is probably influenced by their own established patterns of coping with environmental stimuli. Cognitive style orientation, in particular field dependence/field-independence, may very well influence the types of cues that readers select in order to construct meaning and to impose organization onto the reading task, as well as the extent to which they use those particular cues. It was patterns of these cue selection strategies (as identified through miscue analysis) in relation to a particular cognitive style orientation (field-dependence/field-independence) that this research focused upon in order to better understand this particular sample of Greek bilingual children's

oral reading.

To achieve the purpose of the descriptive study, these questions were asked:

1. What differences exist, if any, in the oral reading strategies used by the subjects while reading in English compared to their oral reading strategies while reading in Greek?

2. What differences exist, if any, in the oral reading strategies for field-dependent (FD) Greek bilingual children as opposed to field-independent (FI) Greek bilingual children while reading in both English and Greek?

METHOD

Sample

The students who participated in this study attended a New York City public elementary school which has approximately a 25% Greek population. Twelve second grade students were chosen from a group of children who had been in a Greek bilingual program since kindergarten. The Language Dominance/Language Proficiency test (LD/LP) was administered to each child to ensure that each student was sufficiently proficient in both English and Greek. The LD/LP test developed by Michopoulos (1980), was used in this study because it is the only instrument of its kind for Greek-American students with established validity and reliability data (Mylonas, 1981). According to the LD/LP test, students are considered "sufficiently proficient" in English and Greek if they score within one standard deviation of the mean or higher. This was an important condition for selection because each subject had to be able to read textual materials in both English and Greek.

All the children in the school's Greek bilingual program had been receiving reading instruction in their native language (Greek) as well as in English from kindergarten. Since children progress at varied rates, and because the primary purpose of this study was to investigate the ways in which cognitive style might affect the extent of use of different reading strategies by oral readers as they construct meaning from print, a specified grade level of reading was not a condition for selection of subjects. Of course, each child took standardized silent reading tests in English as part of the school's regular testing program and these were examined for possible linkages with the miscue analysis results. The standardized reading test that these particular subjects took was the California Achievement Test (CAT)--Level 12, Form C.

This particular sample of bilingual children were in a transitional bilingual program which meant that their Greek instruction was diminshing as their English language skills improved. For example, when the subjects entered kindergarten they received approximtely an equal number of hours of reading readiness in both English and Greek. When reading was formally introduced in the first grade through primarily a phonics oriented system of beginning reading, the children were taught to read simultaneously in two languages (approximately 30% of total instructional time was devoted to reading in each language). Toward the end of the children's second grade school year (April), wher this study began, the instructional time devoted to Greek reading was decreasing (approximately 15% of the total instructional time or about 90 hours per year) while the time devoted to English read-

ing instruction was increasing (approximately 45% of the total instructional time or about 270 hours per year).

In addition to the CAT, child in second grade Greek bilingual program took the Children's Embedded Figures Test (CEFT) developed by Witkin, et al (1971) and after a median split was performed on the scores (they can range from 0 to 25), six "proficient" subjects with scores (14, 15, 16) that extended most extremely beyond one standard deviation of the mean were considered field-independent (FI) for the purposes of this study, and six "proficient" subjects whose scores (5,7,8) extended most extemely beyond a negative one standard deviation from the mean were considered field-dependent (FD). To safeguard the study against any research bias or influence in observation, the FI and FD children were not known.

Procedure

All subjects were asked to read orally one entire unfamiliar story from their English basal reading text and another unfamiliar story from their Greek basal reading text, with the selection being of sufficient length and difficulty to generate a minimum number of 25 miscues (see Goodman & Burke, 1972). Upon completing each tape-recorded selection, the readers were asked to retell orally everything about the story that they could remember. Next, probe questions were asked based on the information supplied by the students in order to aid them in remembering what they had comprehended but perhaps forgotten to retell. This retelling was also recorded as well as assessed and a retelling

score was determined.

The oral reading miscues generated in both languages by the subjects were coded and analyzed according to procedures detailed by Goodman & Burke (1972), described and compared in order to: (1) compile a comparison profile of the English and Greek oral reading strategies and behavior of each subject; and (2) compile a comparison profile of the English and Greek oral reading strategies and behavior of each group of subjects identified as FD and FI.

The task of analyzing the data began after all the audio-taping of the readings by the subjects had been completed. The tapes of the oral readings were listened to as many times as necessary to ensure that all deviations from the text were precisely identified. The second step involved the coding of these deviations or miscues. The Reading Miscue Inventory-RMI (Goodman & Burke, 1972) was used for providing general guidelines in determining the inclusion or exclusion of miscues. Included in the count were: (1) insertions, omissions, substitutions and reversals of a prefix, suffix, or word regardless of whether they were subsequently corrected; (2) only the first complete word or nonword substitution when a reader makes repeated attempts on a word; and (3) complex miscues involving more than a one-for-one substitution, insertion, omission, or reversal.

The adapted version of the RMI used in this study enabled classification of the miscues as follows:

1. Graphic similarity. How much does the miscue look like that which was expected?

2. Sound similarity. How much does the miscue sound like that which was expected?
3. Grammatical function. Is the grammatical function of the miscue the same as the grammatical function of the word in the text?
4. Correction. Is the miscue corrected?
5. Grammatical acceptability. Does the miscue occur in a structure which is grammatically acceptable?
6. Semantic acceptability. Does the miscue occur in a structure which is semantically acceptable?
7. Does the miscue result in a change of meaning?

To give the reader a better idea of how the miscues were coded, another excerpt from one of the subject's English reading is provided and an explanation as to how the miscue was coded in each of the RMI categories:

Soon the sky/sly fox knocked on the door of another house.

1. Graphic Similarity. Since the miscue or observed response (sky) has 66.7% (2 out of 3) of the same letters as the expected response (sly), it is coded as having high graphic similarity (above 50% graphic and sound similarity needed between the miscue and the expected response for a high graphic and sound similarity coding).
2. Sound Similarity. Since the miscue or observed response (sly) has only 50% (1 out of 2) of the same sounds as the expected response (the consonant clusters sk and sl are each considered one phoneme), it is coded as having par-

tial sound similarity with the expected response.

3. Grammatical Function. Since the grammatical function of the miscue (sky is a noun) is different from the grammatical function of the expected response (sly is an adjective), it is coded as having a difference in a grammatical function from the expected response. If it is impossible to determine a miscue's grammatical function, an indetermionate coding is assigned.
4. Correction. The miscue was not corrected as indicated by the absence of a c next to the miscue.
5. Gramatical Acceptability. The miscue is grammatically acceptable only with the sentence portion that comes before it and thus is coded as having partial grammatical acceptability.
6. Semantic Acceptability. The miscue is semantically acceptable only with the sentence portion that comes before it and thus is coded as having partial semantic acceptability.
7. Meaning Change. Since the uncorrected miscue changes the meaning of the sentence, it is coded as causing an extensive change in meaning.

In addition, the number of miscues per hundred words (MPHW) was compiled for each reading in each language. It was hoped that this statistic would be indicative of the relative difficulty of the selections in the two languages.

After classifying each of the subjects' miscues in the above categories, descriptive statistics were obtained in each language for individuals and groups, identified by cognitive style orien-

tation, consisting of percentages, frequencies and means. Comprehension proficiency was determined according to patterns of responses obtained for the categories of correction, semantic acceptability and meaning change. Grammatical relationships were determined according to the patterns of responses obtained for the categories of correction, grammatical acceptability and semantic acceptability.

The statistical analysis included a retelling score which measured the reader's understanding of that which already has been read. According to the RMI, this score is obtained by adding points designated to show the reader's awareness of character analysis, content or events, and extra information such as theme, plot as well as personal reaction.

A comparative profile for each subject was compiled which summarized all statistical findings in each language. Group comparisons in each of the categories of the RMI was depicted in terms of tables and frequency distributions. It was hoped that at this point, patterns would emerge that would not only show particular reading strategies used by field-independents as opposed to field-dependents but also whether the subjects were demonstrating the same reading behavior in reading both languages or whether the reading strategies employed by these bilinguals varied according to the language being read.

RESULTS

The English and Greek oral reading strategies (using the RMI) of six subjects designated by the CEFT as field-dependent (FD) and another six subjects designated as field-independent (FI)

were explored and the results compared to determine if differences exist between groups and between languages read and whether patterns of oral reading strategies can be described.

The summary of the results in Table 1 reveal that the subjects identified as FI and FD tended to look consistently distinct across the two languages. That is, the majority of the analyzed categories for both the Greek and English reading tasks did indicate patterns that might possibly be linked to one's characteristic degree of field-dependency-independency. For 8 of the 10 categories for which sufficient data were generated to warrant analysis, the Greek reading behavior of the FI and FD subjects paralleled their behavior while reading in English. Overall, it can be said that both groups reading in both languages attended to visual and auditory details to a great extent but the fewer miscues generated by the FIs indicates that they attended more carefully to the parts whereas the FDs were more apt to miscue by looking at the whole rather than its components. Furthermore, the FI subjects appeared to bring more meaning and understanding of language to the texts than did the FDs. Two categories, grammatical acceptability and semantic acceptability of miscues, failed to reflect such parallelism in both languages even though the FIs' miscues were more acceptable in English and Greek (the 2% different, however, between groups in the Greek reading for these categories was not enough for meaningful comparison - based on conversation with Monroe, 1984, who felt that at least 5% is necessary). For the categories relating correction strategies to grammatical and semantic acceptability of mis-

cues, not enough data were generated for meaningful analysis.

However, the pattern of FD and FI readers using oral reading strategies in a distinct way across languages does not mean that the nature of the reading was the same for both languages. All subjects made more miscues while reading in Greek (16.4 miscues per hundred words rate compared to 7.7 in the English reading) and tended to depend more on graphophonic and grammatical cues while reading in Greek, (perhaps due to the more phonetic nature of Greek), whereas the subjects tended to be more aware of semantic cues while reading in English as reflected by the higher comprehending and retelling scores in English.

Overall, the subjects in both languages displayed to a greater or lesser extent the general reading strategies of sampling, predicting, testing, confirming, and correcting where necessary in conjunction with the use of the graphophonic, semantic and grammatical cues as well as their prior knowledge in order to get meaning from print. That there is one reading process that manifests itself across readers and across languages seems probable but within that process there is so much variation, especially among younger readers, that individual modes of processing and type of language being read should be taken into account.

GENERAL CONCLUSIONS AND IMPLICATIONS

There seem to be general tentative conclusions generated from the findings that can be drawn from the analysis of the reading behavior of the bilingual second-grade subjects who participated in this study, and these conclusions provide certain implications for instructional programs, as noted below:

1. The utilization of oral reading strategies (i.e., sampling, predicting, testing, confirming, correcting when necessary in conjunction with the graphophonic, semantic, and syntactic cueing systems) was in evidence for both languages read in this study but the extent to which they were used by the subjects varied. In other words, the differences were more a matter of degree rather than of kind. The data support previous research findings which also indicate that there is one reading process which has been mastered to a lesser extent (the subjects' reading in Greek), or to a greater extent (the subjects' reading in English). This conclusion argues for common methodologies across languages while teaching reading. Reading pedagogy in any language should be based on a memory-centered program rather than concentration on sub-skills.

2. Developing Bicognitive Skills in Children

The FI readers in the present study seemed to process printed material in both English and Greek in a manner distinct and more successfully from those readers identified as FD. Hence, once their cognitive style strategies have been ascertained, practice with their less developed strategies should be provided for both groups. Ramirez and Castaneda (1974) argued for bicognitivism (possession of both FD and FI traits) and the development of cognitive flexibility in children by teaching children not only in their preferred mode (matching child's cognitive style to the surrounding environment) but also in an al-

ternative mode (gradually mismatching a child's cognitive style tc the environment.) This would enable children to see that there is not only one way to solve a problem or or perform a task.

For example, the FD students at the beginning stages of reading, in view of their tendencies toward a global perceptual style, could benefit most in terms of flexibility from an analytic phonics approach in which readers first learn familiar words or sight vocabulary and work with the sounds within them. Obviously, in any reading activity meaning is central but sub-skills can be taught within a meaning-centered reading environment. They could also benefit from a language experience approach (a meaning-centered reading program which uses the students' own dictated stories to provide the content and form of the material read) once the stage of using mediating measures (i.e., phonics) in initial reading instruction is passed.

3. Importance of a Maintenance Bilingual Program

Both the FI and FD groups seem to read with more in meaning in English, even though they entered the school speaking very little English and were fluent in Greek. During kindergarten the subjects had equal reading readiness instruction in both languages but by the second grade the subjects were receiving three times as much reading instruction in English. A maintenance bilingual program, instead of the transitional type that

existed in the subjects' school, might enable the students to learn English but not at the expense of their native language literacy skills.

Furthermore, the simultaneous teaching of reading in two languages in the school's transitional bilingual program may have also adversely affected the development of the subjects' English reading skills (their overall mean grade equivalent score on the California Achievement Test was 3.3 compared to 3.6 for their classmates in the school). Since it was concluded that there seems to be one reading process, it would make sense to teach the reading skills and strategies in the children's stronger language at the time they entered school (in this case, Greek) and transfer the skills and strategies to the second language at a later date, as is the case in maintenance bilingual programs, instead of simultaneously introducing reading instruction in two languages, as is the case in many transitional programs.

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