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PHONOLOGICAL AWARENESS: NATURE AND NURTURE BOTH CONTRIBUTE

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Abstract

A study of Japanese children has examined the joint contributions of maturation and experience to the development of awareness about mora (phonological units roughly equivalent to syllables) and phonemes. Using counting tests adapted from Liberman et al (1974), Experiment I reveals that, in contrast to first graders in America who tend to be aware of both syllables and phonemes, almost all first graders in Japan are aware of mora but relatively few are aware of phonemes. The fact that Japanese first graders learn to read a syllabary and a logography whereas American first graders learn to read an alphabet may explain this difference. The first grader's awareness of phonemes may depend on experience with alphabetic transcription, whereas awareness of syllables does not so strictly depend on reading experience. In later grades, however, many Japanese children become aware of phonemes without the benefit of experience with alphabetic transcription, as is shown in Experiment II which used the same counting test methodology to examine the phoneme awareness of children in the third through sixth grades. Here the data reveal that, by the fourth grade, most Japanese children become aware of phonemes whether or not they have been taught to read an alphabet. Apparently, while orthographic knowledge may facilitate phonological awareness, native factors can also contribute to the awareness of mora and phonemes.

Introduction

All normal humans are equipped with a neurophysiology that functions automatically, below the level of consciousness, to extract phonological structure from the speech stream. Consequently, the primary language activities of listening and speaking do not require an explicit awareness of syllables and phonemes any more than they require an explicit awareness of the rules of syntax. Yet a "metalinguistic" awareness of these phonological segments is precisely what is needed when language users turn from the primary language activities of speaking and listening to the secondary language activities of reading, versification and word games (Mattingly, 1972, 1984). While all members of a given community become speakers and hearers, not all become readers, nor do they all play word games or appreciate verse. By implication, then, phonological awareness may require some special cultivating experience above and beyond that which supports primary language acquisition.

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To clarify the determinants of phonological awareness, the present study compared the phonological awareness of children who are native speakers of Japanese with that of children who are native speakers of English. Such a cross-linguistic comparison can illuminate the role of cultivating experience in the development of phonological awareness, since the Japanese and English language communities have different writing systems, different word games and different versification devices which require different levels of awareness about phonological structure. In particular, many English secondary language activities manipulate phoneme-sized units: English employs an alphabetic orthography which represents spoken language at the level of the phoneme, and many word games such as "pig-Latin" and "Geography" and versifications devices such as alliteration also involve manipulations of phonemes. There are also secondary language activities in English, such as the versification devices of rhyme and meter operate on syllable-sized units instead. In contrast, Japanese secondary language activities manipulate mora -- phonological units that are roughly equivalent to syllables -- if they manipulate phonological structure at all. The Japanese orthography comprises two types of orthographic transcription: a morphology-based system Kanji, which represents the roots of words, and a phonology-based system, the Kana syllabaries, which represents mora; Japanese word games such as "Shiritori" or "Jankenpon" and versification devices such as Japanese Haiku operate on mora. Thus, if experience with secondary language activities induces phonological awareness, Japanese children should only be aware of mora whereas American children should be aware of both phonemes and syllables. However, to the extent that native factors are important, children in both communities should be equally aware of both types of units.

Interest in the determinants of phonological awareness is prompted by the many studies which have posited an association between phonological awareness and success in learning to read an alphabetic orthography. These reveal that measures of performance on tasks which require manipulations of phonological structure not only distinguish good and poor readers in the early elementary grades (Alegria, Pignot and Morais, 1982; Fox and Routh, 1976, 1980, 1983; Katz, 1985; Rosner, 1973) and correlate with beginning readers' scores on standard reading tests (see, for example: Calfee, Chapman and Venezky, 1972; Fox and Routh, 1975; Perfetti, 1985; Stanovich, Cunningham and Freeman, 1984b; Treiman and Baron, 1981), but can even presage the success with which kindergarten children will learn to read in the first grade (see, for example: Bradley and Bryant, 1983; Helfgott, 1976; Jusczyk, 1977, Liberman, Shankweiler, Fischer, and Carter, 1974; Mann, 1984; Mann and Liberman, in press; Stanovitch, Cunningham and Cramer, 1984a).

In many studies of reading ability and phonological awareness, the question of cause and effect has been broached, but never completely resolved. One of the earliest studies revealed that American children's awareness of phonological structure markedly improves at just that age when they are

beginning to read (Liberman et al, 1974): Among a sample of four, five and six-year-olds, none of the youngest children could identify the number of phonemes in a spoken word, while half could identify the number of syllables. Only 17 percent of the kindergarteners could segment by phonemes while, again, half could segment by phonemes. By the first grade, however, 70 percent were successful with phoneme segmentation and 90 percent were successful with syllable segmentation. Did the older children become aware of syllables and phonemes because they were learning to read, was the opposite true, or both?

On the one hand exists evidence that measures of phoneme awareness and syllable awareness are both related to the success with which preliterate children can learn to read the alphabet (Mann, 1984; Perfetti, Beck and Hughes, 1981; Stanovich et al, 1984a). In addition, reading level alone does not always associate with the level of children's awareness about phonemes (Bradley and Bryant, 1978). On the other hand is evidence that at least one components of phonological awareness -- awareness of phonemes -- may depend on knowledge of the alphabet. The ability to manipulate phonemes is markedly deficient in both illiterate Portugese adults (Morais, Cary, Alegria and Bertelson, 1979) and Chinese adults who can read only the Chinese logographic orthography (Read, Yun-fei, Hong-yin and Bao-qing, in press), although these same subjects demonstrate an appreciable awareness of syllables. In addition, first-graders who have been taught to read the alphabet by a phonics approach tend to be more aware of phonemes than those who have learned by a "whole-word" method, although here, again, awareness of syllables appears less influenced by educational experience (Alegria, Pignot and Morais, 1982).

Thus the presence of phoneme awareness in preliterate children can enhance their ability to learn to read, yet awareness of phoneme sized units is enhanced by learning to read the alphabet, in general, and by methods of instruction that draw attention to phonemic structure, in particular. As for awareness about syllables, this appears to be less dependent on the experience of learning to read an orthography which transcribes syllables, as many preliterate children can manipulate syllables by the time they are six years old and the ability to do so is apparently less influenced by the kind of reading instruction that they receive in the first grade or by knowledge of a given type of orthography. Research that has been conducted thus far, then, suggests that awareness of syllables could be a natural cognitive achievement that is less dependent on a nurturing experience with secondary language activities, whereas awareness of phonemes might be more of a function of experience with alphabetic transcription, in particular.

As a test of this view, the present study uses the counting test methodology developed by Liberman and her colleagues to explore the phoneme and syllable awareness of children in a Japanese elementary school. Two experiments are reported. Experiment I focuses on first-graders who had recently mastered

the Kana syllabaries, as comparison of the data obtained from these children with Liberman et al's findings about American first graders can clarify the impact of knowledge of a syllabary vs. knowledge of an alphabet on awareness of syllables and phonemes. As another means of clarifying the relation between reading and phonological awareness, Experiment I also asked whether phoneme and syllable awareness are related to the ability to read Hiragana, adding a nonlinguistic control in the form of an "angle counting" test as a control for the possibility that reading ability might reflect general intelligence rather than phonological awareness, per se.

Experiment II turns to Japanese children in the third to sixth grades, capitalizing on certain aspects of the Japanese educational system to further clarify the relative contribution of age and knowledge of the alphabet to children's awareness of phonemes. Its design is prompted by the fact that Japanese children receive some instruction in alphabetic transcription during the last trimester of the fourth grade, and by the fact that certain Japanese elementary schools offer a "re-entry" program for fourth through sixth graders who have spent the first few years of their education abroad. In such programs it is possible to find native speakers of Japanese who, like American children, have learned to read an alphabetic orthography in first grade.

Experiment I

Methods

Subjects

The subjects were 40 children attending the first grade of the primary school attached to Ochanomizu primary school. They included twenty girls and twenty boys who were chosen at random from the available population and who served with the permission of their parents and teachers. Mean age was 84.4 months at the time of testing, which was the beginning of the second trimester of the school year. As a measure of Hiragana reading ability, the elapsed time and the number of errors were recorded as each child rapidly read aloud a list of thirty high-frequency nouns, adjectives and verbs taken from Sasanuma (1978). Each child was also rated by his or her teacher as above-average, average, or below-average in Kana reading ability.

Materials

The experiment employed three sets of materials designed to measure the ability to count mora (i.e. syllables), phonemes, and (as a nonlinguistic control) 30^{o} angles. All three were modelled after those of Liberman et al (1974); each contained four series

of training items which offered the child an opportunity to deduce the nature of the unit being counted, and a sequence of test items. In the mora counting test and phoneme counting test, all training and test items were common Japanese words which had been judged by four informants (a linguist, a speech scientist, a teacher of Japanese and a librarian) to be readily familiar to young children. In the angle counting test, the items were simple line drawings of abstract designs and common objects. A detailed description of each test follows.

Mora counting test

In this set of materials, each training series contained three words: two-, three- and four-mora in length. Within the first three series, the words formed a progressive sequence (starting with a two-mora word which was then embedded in a three-mora word, which was, in turn, embedded in a four-mora word), but the words of the fourth series did not. To introduce some of the complexities of Japanese phonology, the third series included a devoiced vowel, and the fourth included geminate vowels and geminate consonants; however, to avoid biasing the child's decision as to whether the task was to count the mora in a word or the number of Kana characters needed to spell the word, the training items included only those mora which are spelled with a single character. Thus it was left ambiguous whether the task was to count orthographic units, or phonological ones.

The test sequence consisted of 14 two-mora words, 14 three-mora words and 14 four-mora words presented in a fixed random order. An attempt was made to include all common combinations of mora, as well to include some geminate vowels and geminate consonants. As a probe for whether children were counting mora or orthographic units, three of the test items included one of the Japanese mora which are spelled with two characters.

Phoneme counting test

This set of materials was analagous to that for the mora-counting test but manipulated the number of phonemes instead of the number of mora. The four training series contained a variety of the possible two- three- and four-phoneme sequences of Japanese, including nasal mora, devoiced vowels, long vowels and geminate consonants. Each of the first three contained a progressive sequence of items whereas the fourth did not. The test sequence contained 14 two-phoneme words, 14 three-phoneme words and 14 four-phoneme words arranged into a fixed random order. The items comprised a broad sample of the phoneme sequences permissable in Japanese which avoided systematic relationships between the number of phonemes a word contained, and either the number of mora in that word, or the number of Kana needed to spell it.

Angle counting test

These materials were simple black and white line drawings of common objects and geometric shapes, each appearing on a three-by-five inch card. From one to three 30° angles were embedded in each drawing and the task was to count the number of these angles. In keeping with the design of the phoneme- and mora-counting tests, there were four series of training trials, each containing three drawings with one, two or three angles. In the first three series, the items were a progressive set composed of simple geometric shapes, but in the fourth there was no systematic relationship between the objects. The test sequence comprised seven one-angle drawings, seven two-angle drawings and seven three-angle drawings arranged in a fixed random sequence.

Procedure

Prior to testing, the children were divided into two groups of ten girls and ten boys each. One group participated in the mora counting test, the other participated in the phoneme-counting test, and both groups received the angle-counting test, which was administered at the onset of the experimental session, and the reading test, which was conducted at the end of the session.

The procedure for all three counting tests was the same. The instructor, who was a native speaker of Japanese, began by taking two small hammers and telling the child that they would be playing a "counting game". He gave the child one hammer, kept the other for himself and proceeded to demonstrate the items of the first training series, in progressive order, saying each word (or displaying each card) and then using the hammer to tap the number of segments (i.e. mora, phonemes or angles). After all three items had been demonstrated, the demonstration was repeated, but this time the child copied the instructor. (In the case of linguistic materials the child was also asked to say the item aloud before tapping its number.) Next, the items in the series were re-presented according to a fixed random order, and the child responded without benefit of demonstration. If an error was made, the item was repeated (i.e. tapped by the instructor and copied by the child) and presentation of a second randomized series followed. Otherwise, training proceeded to the next series. On successful completion of the fourth training series, the test items were presented and the child was instructed to "count" each item without the benefit of response feedback.

Results and Discussion

In evaluating children's responses, two different scoring methods were employed. The first was to determine the number of correct responses, the second was to compute a pass/fail score in which case the criterion for passing was six consecutive correct

responses as in Liberman et al (1974). Scored in this way, the results appear in Table I along with the mean age and mean reading scores (Hiragana reading speed, Hiragana reading accuracy, and teacher ratings) for children in each group.

Inspection of Table I will reveal that the children who counted mora were equivalent to those who counted phonemes in terms of their mean age, reading ability, and performance on the angle-counting test ($p>.05$). However, whereas scores on the mora-counting test approached ceiling, scores on the phoneme-counting test were considerably lower, $t(38)= 20.20$, $p<.0001$, and while all of the children had passed the mora counting test, whereas only 10% had passed the phoneme counting one.

The percentage of Japanese children who passed each test is to be compared with the percentage of American first graders that had passed Liberman et al's original tests: 90% for syllable counting, and 70% for phoneme counting. Apparently first-grade children who have been educated in the use of the alphabet tend to be more aware of phonemes than those who have not, and while children who have been educated in a syllabary might be slightly more aware of syllables than those who have not, any difference is considerably less dramatic.

Another approach to the question of whether phonological awareness is a function of orthographic knowledge, is to consider the pattern of errors made on each test. Remember that subjects were never given explicit instructions as to the nature of the unit being counted; rather, they had to decude the unit from the examples presented in the training trials. Error analysis reveals that children tended to conceive of the task as counting orthographic units rather than phonological units, per se. First, in the mora-counting test, the majority of children missed those three items which included a mora that is spelled with two characters instead of one. Children tended to gave one more "tap" to each of these words than was appropriate, as if they were counting orthographic characters instead of mora, per se. (Other, much less frequent errors involved words which contained geminate consonants or long vowels, both of which tended to be underestimated and were missed only by the poorest readers of the group.)

Second, on the phoneme-counting test, many errors tended to reflect a strategy based on spelling the words in Kana. This became evident when, during a post-hoc interview, some of the children reported that they had tapped the number of Kana characters needed to spell a word, and then added one to arrive at the correct response. An average of 55% of the children responded correctly to each item ($N=25$) for which the "Kana-plus-one" strategy yielded the appropriate response (which is significantly better than chance, $t(24)=2.62$, $p<.05$), whereas an average of 38% responded correctly to each item ($N=17$) for which this strategy yielded the incorrect response (which is significantly less than the percentage of children giving correct responses to to the strategy-appropriate items, $t(40)=5.4$, $p<.001$

and not significantly better than chance $p>.05$).

A final analysis of the data concerned the relation between performance on the counting tests and reading ability. For the children who learned to count mora, the number of correct responses on the mora counting test was significantly related to teacher ratings, $r(20)=.72$, $p<.0001$, Hiragana reading speed, $r(20)=.58$, $p<.003$, and the number of errors, $r(20)=-.47$, $p<.02$, but not to age, sex, or performance on the angle counting test. For the children who learned to count phonemes, the number of correct responses on the phoneme counting test was also significantly related to teacher ratings $r(29)=.56$, $p<.005$, reading speed $r(20)=.65$, $p<.001$ and reading errors $r(29)=-.57$, $p<.004$, but not to age, sex, or angle counting performance. Thus both phoneme and syllable counting performance are related to the ability to read Hiragana, just as they are related to the ability to read the alphabet. Here, as well as for American children (Mann and Liberman, 1984; Stanovich et al, 1984b), the effects of general cognitive abilities are less critical than phonological awareness, per se, as evidenced by the lack of correlation between measures of reading ability and performance on the angle counting test.

It can be concluded from the results of Experiment I that American children who have learned to read the alphabet are more aware of phonemes than Japanese children who have learned to read a syllabary instead. Nonetheless, some Japanese children are aware of phonemes without being able to read an alphabet, and these children tend to be among the better readers of their classes. Thus there may be native factors related to phoneme awareness, just as there may be native factors in syllable awareness. As a test of the possibility that Japanese children's awareness about phonemes might increase with age, as well as with exposure to the alphabet, we now turn to Experiment II, which assessed the phoneme and mora counting ability of Japanese children in the third through sixth grades. This age range was of interest because children routinely receive a month of training in the use of alphabetic transcription in the final trimester of the fourth grade. To disconfound the effects of age and educational experience the experiment further included a special population of fourth- through sixth-grade children who, although native speakers of Japanese, were reentering the Japanese educational system after time spent abroad in America, Canada or Germany, where they had learned to read an alphabet as first graders.

Experiment II

Method

Subjects

The subjects were children attending the normal third through sixth grade classes and the special "re-entry" class at Ochanomizu University. They were tested during the second trimester of school, such that children in the fourth grade had not yet received training in the alphabet. The "normal class" subjects included 64 children in the third and fourth grades, and 32 children in the fifth and sixth grades. The "reentry class" subjects included 13 fourth graders, 14 fifth graders and 12 sixth graders, all of whom had learned to read either the English or German alphabet.

Materials and Procedure

The materials were the mora- and phoneme-counting materials employed in Experiment I, and they were administered by the same instructor. For convenience, the procedure was adapted for group testing in which case an entire class of children received the basic instructions and practice items with feedback, and learned to "count" each word by drawing slashes through the appropriate number of boxes in a five-box answer grid. As in Experiment I, feedback was provided during training, but no feedback was provided during presentation of the test items. To insure the feasibility of group testing, the mora counting materials were administered as a control measure to 32 of the third graders and 32 of the fourth graders. All of the remaining subjects received the phoneme counting materials.

Results and Discussion

The data were scored in the manner of Experiment I, by computing both the number of correct responses and a pass/fail score. The results obtained from the mora counting materials indicated the utility of the group testing procedure; as all of the third- and fourth-grade children had passed criterion with mean scores of 38.7 and 39.0, respectively. It is a statement about the continuing power of the orthography to mold the child's concept of language that, as was the case in Experiment I, almost all of the children had made errors on the three test words in which the number of Kana characters needed to spell the word surpasses the number of mora it contains. Like the first graders, then, the older children appeared to have interpreted the task to be "count characters" rather than "count mora".

Performance on the phoneme counting test, which was the main concern of this experiment, is summarized in Table II, according to the age of the subjects, and according to whether they were in

the normal or re-entry classes. Previous findings that alphabet-illiterate adults are not aware of phonemes, would seem to suggest that Japanese third and fourth graders should not be any more aware of phonemes than the Japanese first graders studied in Experiment I, and that the normal fifth and sixth graders and all of the re-entry students should be more comparable to the American first-graders studied by Liberman et al (1974). However, the data fails to uphold that this prediction. Age had more of an effect on phoneme awareness than did instruction in the alphabet. First, for the normal children, the only marked improvement in phoneme counting scores occurs prior to the time children are exposed to the alphabetic principle, and there is no sharp spurt in the awareness of phonemes between fourth and fifth grades ($p>.05$) such as would be expected if knowledge of the alphabet were critical. Second, children in the fourth-grade reentry group performed at the same level as their peers in the normal fourth-grade classrooms ($p>.05$), despite the fact that they had learned the alphabet during time spent abroad. Finally, as many of the Japanese fourth graders had passed criterion as had the American children in Liberman et al's (1974) study, despite the fact that they, unlike the American first graders, had not yet learned to read the alphabet. Thus whereas the results of Experiment I highlighted the effects of orthographic knowledge, Experiment II suggests that cognitive maturation can play an unexpectedly important role in the instantiation of children's awareness of phonemes.

One cannot, however, entirely disclude the importance of orthographic knowledge, since, as was the case in Experiment I, the pattern of errors suggests that at least some children were relying on the strategy of "count the number of characters needed to spell the word, and then add one." Children at all ages tended to be most successful in the case of items for which this strategy yielded the correct response: for strategy-appropriate items the average percent correct was 58%, 80%, 81%, and 82%, for third through sixth graders, respectively, whereas that for the strategy-inappropriate items was 42%, 56%, 64%, 67%, respectively. Here, however, performance on both types of items surpassed the chance level of 33% correct ($p<.05$), which suggests that children at each age had arrived at the appropriate solution.

General Discussion

The findings of Experiment I suggest that phonological awareness is related to reading experience and can be facilitated by experience with a given orthography. In particular, knowledge of a given orthography can facilitate children's awareness of the units its transcribes, thus knowledge of an alphabet facilitates phoneme awareness among American children, and to a lesser extent, knowledge of a syllabary facilitates syllable awareness among Japanese children. Yet more general associations also appear to hold between orthographic knowledge and phonological

awareness, given that awareness of phonemes is just as related to success in reading a the Hiragana syllabary as is the awareness of syllables. The findings of Experiment II further complicate the relation between orthographic knowledge and phonological awareness by revealing an unexpected effect of age. Although most first graders cannot count the number of phonemes in a word unless they are readers of an alphabet, the majority of Japanese children are able to count phonemes by the fourth grade, whether or not they have learned to read an alphabet.

The findings of Experiment II stand in contrast to previous reports that adults who do not know how to read an alphabet are not aware of phonemes, and an explanation is required. Several possible explanations can be entertained. One is to view the different results as consequences of task differences rather than the reflection of differences in phonological awareness, per se. Deletion tasks were used in previous studies of illiterate adults, and the counting tasks that were employed in the present study may have provided a less conservative measure of phoneme awareness. Prompted by this consideration, two additional experiments are in progress which employ phoneme and syllable deletion tasks to evaluate Japanese children. Preliminary observations suggest that the change in task does not alter the pattern of results, and this is consistent with some other observations that the task-unique cognitive demands posed by different tests of phonological awareness do not appreciably confound conclusions about phonological awareness and its role in reading acquisition (Stanovich et al, 1984a).

Another explanation accepts the difference between Japanese children and alphabet-illiterate adults as a difference in phonological awareness, but considers the impact of knowing a phonological orthography as opposed to knowing a morphological orthography or no orthography at all. The adults who proved deficient in phoneme awareness were either totally illiterate, or literate in the Chinese logography, whereas the Japanese children were familiar with one form of phonological orthography insofar as they knew the Kana syllabaries. Perhaps any reading experience which draws the child's attention to the internal structure of words will encourage phoneme awareness, which would accord with the correlation between Kana reading ability and phoneme awareness (although the correlation alone cannot speak to the question of which comes first). Moreover, the cultivating experience which precipitates phonological awareness need not be limited to reading -- as is evident from previous findings about the utility of explicit training in phonemic analysis (Treiman and Baron, 1983). The experience might involve learning to analyze or manipulate the phonological structure of spoken words in the process of playing word games like "Geography" or "Shiritori" or in the process of learning about such versification devices as alliteration, rhyme, or meter, and this could help to explain why American children are aware of syllables, before they learn to read. But there is a problem with this view insofar as meter and rhyme are exploited by both Chinese and Portugese verse, and these should have been available

to the illiterate adults who nonetheless lacked phoneme awareness. Another problem arises from the fact that, in the present study, all of the children were familiar with the Kana syllabary and the same types of word games and versification devices, yet only a small minority of the first graders (10%) were able to count phonemes whereas the majority of fourth graders could do so.

This returns us, in the end, to the possibility that both syllable and phoneme awareness can be natural concomitants of primary language development, as well as a function of some cultivating experience with a secondary language activity such as reading. The final explanation of the differences between the phoneme awareness of Japanese children and alphabet-illiterate adults therefore considers the different developmental status of children in the process of acquiring their primary language as opposed to mature language users. That the status of primary language acquisition could be relevant to phoneme awareness follows from a suggestion made by Mattingly (1984) in answer to the question of why readers might be able to gain access to the otherwise reflexive processes that support the processing of phonological structure in spoken language. His suggestion is that an ability to analyze the phonological structure of spoken words might serve to increase that language learner's stock of lexical entries, and therefore might be viewed as part of the language acquisition device. If one takes this view, and adds to it some other evidence that children have a priveledged ability to acquire new lexical entries (Carey, 1978), then it raises the possibility that children have a priveledged access to phonological structure which could facilitate the emergence of phonological awareness. The prevalence of this capacity in childhood could promote the acquisition of phonological orthographies in elementary school, and its decay with increasing age might explain the resistance of adult illiteracy to educational intervention. But this view is not without its problems, one being the fact that Japanese children cannot count phonemes until relatively late in their childhood. Here, perhaps, the cognitive demands of tests that are used to measure phoneme awareness cannot be discounted. Ongoing research with a broader battery of tests and a broader range of ages may further elucidate the very complex interrelations between age, experience and phonological awareness.

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Table I

Mora Counting vs. Phoneme Counting Among Japanese First Graders

	MORA COUNTING	PHONEME COUNTING
Linguistic Awareness		
Mean No. Correct (Max.=42)	38.1	18.1
Percentage Passing	100.0	10.0
Geometric Awareness		
Mean No. Correct (Max.=21)	11.9	11.8
Kana Reading Ability		
Mean speed (in sec.)	61.1	60.7
Mean errors (Max.=30)	1.6	1.8
Mean teacher rating (Good=1, avg.=2, poor=3)	1.9	2.0
Mean age (in months)	83.7	84.1

Table II

Phoneme Counting Ability Among Japanese Children in the Third to Sixth Grades: Normal vs. Reentering Students

	Grade			
	Third	Fourth	Fifth	Sixth
Normal students				
Mean No. Correct (Max.=42)	21.5	30.3	31.2	31.5
Percentage Passing	56.2	73.5	81.3	75.0
Age (in months)	108.5	120.1	131.2	143.7
Reentering students				
Mean No. Correct (Max.=42)	---	27.2	28.6	27.7
Percentage Passing	---	60.0	60.0	80.0
Age (in months)	---	118.9	132.7	144.4

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