A Study on Phonemic Awareness in Reading: A Review

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0. Introduction

The focus of this paper is phonemic awareness, 'the ability to reflect on and manipulate the phonemic segments of speech (Tunmer and Rohl 1991:2)'. Though phonemic awareness (or phonological awareness) might not be familiar among ESL teachers and researchers in Japan, it has gotten great interest among researchers who investigate English literacy acquisition. Indeed a lack of phonemic awareness is observed in learners who fail or are slow to acquire L1 literacy.

Before we go into the discussion on phonemic awareness, the relation between phonemic awareness and reading must be clarified. In this paper reading does not mean understanding sentences or stories, but rather lexical access in the reading process. So far, it has been revealed that phonemic awareness is related to literacy by way of phonological recoding (Tunmer and Nesdale 1985). In phonological recoding, the sublexical units in spoken and written words play an important role. Close depiction of phonological recoding is like this: First of all, letter(s) are identified in the target written word, then the phoneme or larger phonological units are assigned to each letter identified and all of them are integrated into a word. Suppose the word 'bring' is visually presented. The reader identifies three letters and one set of letter strings that present a phoneme respectively; b /r /i/ng' → /b/ for 'b', /r/ for 'r', /i/ for 'i', /ŋ/ for 'ng'. When children are just beginning to learn how to read in their native language, it is natural to assume that they connect the auditory representation of word to written representation. To do this, they usually rely on the process of translating letter(s) to sound(s), the phonological recoding. Children usually grow to have more sight words whose lexical access is performed without getting its auditory representation, but even when they become fluent adult readers, they make use of phonological recoding to access the long or unfamiliar words (refer to Coltheart 1978, Seidenberg 1985, Backman et al. 1984, Taft 1991).

Because phonemic awareness is not fully discussed in second or foreign language learning, we will begin by clarifying our central conception of phonemic awareness though some points have not been settled. Next, taking into account the fact that phonological recoding can be considered to contribute to effective lexical access by English learners as it does for adult fluent readers, we will attempt to get implications for Japanese learners' phonemic awareness by means of examining great many researches on L1 literacy acquisition.

1. Phonemic Awareness Defined

Phonemic awareness is defined as 'the ability to reflect on and manipulate the phonemic segments of speech (Tunmer and Rohl 1991: 2)'. Phonemic awareness is not equivalent to the ability to distinguish the word 'cat' from the word 'bat', whose difference is one phoneme. The explanation of Morais et al. (1979) is helpful to make us understood this concept, that is, 'the reader/writer must not only be able to distinguish between cat and bat, but must also know
that cat and bat consist of three units and differ only in the first ‘.

Though phonemes are the abstract units in speech, three concrete aspects of the phoneme unit cause difficulty in reflecting on and manipulating phonemes (Lundberg and Hoien 1991). The first is the fact that the phoneme cannot be pronounced in isolation. Only a few phonemes, such as vowels, or the consonant /s/, can be pronounced rather easily, however, many phonemes can not be pronounced as easily and aren’t given the opportunity to be pronounced in isolation. To confirm this, try to pronounce the consonants /b/ and /l/ in isolation.

The second point is that phonemes can not be pronounced as individuals, but phonemes are realized overlapping with adjacent phonemes in speech. It’s because the following phoneme begins to be articulated before the precedent phoneme ends (this is called co-articulation). Phonetic studies proved this, at least, from articulatory and acoustic points of view (Liberman and Blumstein 1988). The simple chart presented by Rost (1990) illustrates that overlapping (see Figure 1. below).

![Overlapping phonemes](image)

Figure 1. Overlapping phonemes (from Rost 1990:37)

The third point is that a phoneme is not meaningful in itself. As a result attention is hardly paid in normal communication. For example the word ‘bring’ means to come with (something), so the word is an easier unit to reflect upon. Needless to say, sentences or discourses are also meaningful. On the contrary, the phoneme /b/ in ‘bring’ does not have a meaning. The phoneme /b/ plays an important role for discriminating ‘bring’ from ‘cring’, but each phoneme is not meaningful in itself.

2. Acquisition of Phonemic Awareness

Phonemic awareness is not acquired naturally with cognitive mutuality while people hear speech, but it is learned. This is shown by lack of phonemic awareness in the illiterate and people who have no experience reading the alphabet. Morais et al. (1979) tested phonemic awareness in illiterate people and literate people, and found that illiterate people could not accomplish phonemic manipulation tasks. In Read et al. (1986), Chinese adults literate only in Chinese characters could not manipulate individual consonants in speech, on the contrary the Chinese natives literate in the alphabetic system as well as Chinese characters could perform the same phonemic manipulation tasks accurately. They proved that phonemic awareness is not attained spontaneously in the course of general cognitive growth, but demands some specific training, which is normally provided by learning to read (Morais et al. 1979).

Now, what of Japanese? Do Japanese acquire phonemic awareness?. Unlike the English learners whose native language has an alphabetic written system, Japanese are not required to develop phonemic awareness to read Japanese kana or kanji. Of course, speech in Japanese consists of continuous phonemes, though the number and sorts of phonemes as a basis of our speech are different. Yamada et al. (1990) showed that Japanese university students utilized phonological recoding during reading kana, however, this phonological
recoding may not involve phoneme level translation because each kana letter reflects a mora, most of which are combinations of one consonant and one vowel. The attention to the sound within a word must be only moras for Japanese readers.

While normal reading or writing using kanji and kana does not enable Japanese to acquire phonemic awareness, the possibility of phonemic awareness could come from Romaji, (one of the Japanese writing systems which consists of the alphabet), or understanding of the kana matrix whose construction is the phonemic basis. That means literacy in Romaji contributes to develop phonemic awareness. Romaji is learned by all Japanese at primary school. As phonemic awareness does not arise spontaneously, but is acquired by triggering conscious attention to phonemes in speech, the way of Romaji learning is important from the viewpoint of phonemic awareness. If Romaji is learned by association with kana, like 'ki' is equivalent to [キ] instead of analyzing into phonemes, phonemic awareness through learning Romaji would not be expected. On the other hand, if Romaji is taught focusing on phonemic units, it is equivalent to one of phonemic awareness training. In the text book for 4th grade children, only four to eight pages are assigned to Romaji instruction and all textbooks presents Romaji in the kana grid. We can't evaluate the Romaji learning only from the textbooks, but as far as this concerned little attention is paid to phonemic awareness and fostering phonemic awareness. Moreover, it is reported that Romaji acquisition is quite low among junior high school students as well as primary school children (Takahahi and Takanashi 1987:47). Teachers appear not to think much of instructing Romaji.

In this situation, if Romaji contributes to developing phonemic awareness, Romaji learning at school can not guarantee phonemic awareness for Japanese. So, it leads us to conclusion that phonemic awareness is one of the requisite in English language education.

3. Implications for Phonemic Awareness Instruction: Evidence from Studies on the Effect of Phonemic Awareness Instruction for L1 Learners

There are reports that some children have difficulty in acquiring phonemic awareness (Tunmer and Rohl 1991, Shankweiler and Crain 1986). Bradley and Bryant (1978) reported the some children have difficulty in phonemic awareness, and those children's reading skill is lower than that of their age group.

The trainability of phonemic awareness and its effects of its explicit instruction on the phonological recoding are illustrated by several studies. Treiman and Baron (1983) set up research question like this; phonemic awareness training helps children make use of spelling-phoneme rules in learning to read (phonological recoding). The training of phonemic awareness consisted giving pre-school and kindergarten pre-readers a task that required to segment syllables presented aurally into phonemes. The training lasts only 4 days and it was ascertained that all children attained the criteria. After the training period, the effects were assessed by comparing the experimental group with the control group which consisted of children who had never had such a training. Training group overperform the counterparts.

Lundberg et al. (1988) evaluated a program consisting of games or exercises that were developed with the aim of stimulating children to acquire phonemic awareness. The games and exercises in this program were all performed aurally and required the children to segment speech into phonemes or count phonemes within a word. The children received no reading instruction prior to or during the session. After the session finished, a comparison was made between the trained children and children in the comparison group. Results substantiate

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dynamic development of phonemic awareness in trained children. Subsequently, Lundberg et al. (1988) demonstrated that the training had a positive effects on reading and spelling ability in first and second grade in primary school. Similar results were obtained by Bradley and Bryant (1983). They show that the effect of training was confirmed until the third grade. The studies carried out by Ehri and Wilce (1987) confirmed effect with using letters.

Phonemic awareness is therefore enhanced if explicit game like trainings practiced. It also positively affects the learners' ability to phonologically record. At present, concerning phonemes, one of the tasks presented for Japanese learners is mainly learning how to pronounce or listen to phonemes which are not included in the Japanese language. This task is assigned for the purpose of speaking or listening to English, however, combined with the many tasks contrived for phonemic awareness for literacy acquisition, we should reconsider phonemic awareness for reading (especially for better lexical access).

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