

## Isochrony in Language Teaching

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### 1. Introduction

“Neo-oralization” of TEFL, if we may be allowed to put it this way, has come to the coast of Japan, the tide of which we couldn't afford to turn back. In the meantime, “communication-orientation” of language teaching seems to have attached importance to suprasegmentals in dealing with pronunciation. While possible mishandling of pronunciation teaching in class could lead to impairment of students' communicability (Mikuma & Tanabe, 1992), it might also result in deterioration of students' potentially powerful “learnability.” Thus, pronunciation should be so taught that the students can “take the cream off the top” of their learning process in the best, most efficient manner.

The aim of this study is to see if a consideration of a certain type of pronunciation teaching, using a phonological quality in English called “isochrony,” can present a new perspective on TEFL in terms of memorization and any form of classroom activity that is intended to make it happen.

### 2. Rhythm, Isochrony and Memorization

The English language is said to belong to “stress-timed” category having a phonological disposition wherein stressed syllables are spaced equally in time.<sup>1</sup> This idea goes back to the work of Joshua Steele (1775) and has been put through controversy over the years as to whether or not it really exists (Classe 1939; Shen & Peterson 1962; Halliday 1967; Lehiste 1977; Roach 1982; Dauer 1983, etc.). Despite this debate, as Giegerich writes:

Lehiste (1977) has shown that isochrony, while it cannot be interpreted as the objective measure in speech production, is nevertheless valid as a linguistic reality, somewhat obliterated by the psychology of time perception. . . . We can thus . . . speak of ‘phonological isochrony’ without stronger claims towards acoustic exactness. (Giegerich 1985: 185)

This view was shared by Kubozono (1991) in Japan.

A close attention to this variety of arguments would immediately give you a pause. They

are all from purely linguistic points of view. It is proposed that an educational value may be found in the attention to this rhythmical recurrence. An assumption is that the presence or consciousness of "isochrony" might facilitate the learner-effectiveness of retention in trying to memorize English sentences representing grammatical points. The present author as an ex-high school teacher has an empirically based notion that this is the case. The newly revised course of study points this out and recommends the use of isochrony. It was not until this revision that an explicit recommendation like this had been made; does this mean it has never even been considered in Japan's English teaching scene? Not in the context of using rhythm as a tool for memorization, but C. C. Fries did refer to isochrony and said it ought to be properly treated in *Teaching and Learning English as a Foreign Language* (1945), which was one of the most frequently mentioned publications on language teaching in Japan. It is very unlikely that the work of Fries, language teaching giant of those days, could have completely slipped out of the teachers' sight. And yet its thorough application doesn't seem to have come true. Reconsideration is due. In fact it is overdue.

Memory with regard to rhythm has been discussed mainly in the area of music education (Boroda 1991; Shehan 1987; Milman 1979; Domek 1979; Glanzer 1976; Katz 1989; Brandt 1986; Hartman 1982, etc.) and education for the disabled children (Nikolic 1987; Van & Antonio 1981; Pratt 1983, etc). Actually many of these refers to foreign language learning. As far as teaching methods are concerned, Suggestopedia proposed by Georgi Lozanov does use some music-related devices including rhythm. And by now, it seems to have been well-documented that memory (retention) and rhythm are no strangers to each other. However, there is very little, if any, mention of the innate isochronous quality displayed by the target sentences and its possible relationship with memorization facility in learning English, that is, dealt with in combination. Little research has been done on how the memorization of rhythmically enjoyable sentences can lead to increased retention. In other words, no research has raised the point of memorization reinforcement caused by the comfortable rhythm possessed by the target sentences. Hence, the following experiment.

### 3. Study

#### 3.1 Hypothesis

As was mentioned earlier, this author has an experience of teaching high school students, and with special emphasis on isochrony. A special drum sound producing device was carried to the classroom and used when chorus reading was in session. It was almost like singing. One of the staff approved of using this method; after a year of teaching in this manner, we knew that this method was a big hit. Not a few students said it was easier to memorize the English sentences along with the rhythm created by the machine. So the hypothesis here is that with the other conditions equal, after some times of repetition, the target sentences would be retained better by those who repeated them with the accompaniment of the rhythm.

### 3.2 Procedure

The subjects were 77 students (40 boys and 37 girls) in the first year of a public high school, constituting two classes. The experiment was conducted with these two classes separately. The control group consists of 39 students (21 boys and 18 girls) and the target group, 38 students (19 boys and 19 girls). All the subjects were requested to listen to the taped material consisting of ten sentences of junior high level, specially designed to fit into the isochronous rhythm. The sentences are shown in the list in the APPENDIX II. They were recorded on a multi-track tape recorder specially designed for musical purposes. Two types of tape material using the same sentences were prepared. One had the voice recorded alone, and the other, my voice accompanied by the drum beat. In both versions, each sentence was followed by a digit. The multi-track tape recorder made it possible to have the only difference being in whether or not the drum beat was present. That is, the master tape made by the recorder had both the voice and the rhythm. All that was required was to slide the dimmer down to zero on the track where the beat was taped in order to take out the drums. The target sentences were repeated ten times with the interval long enough for the model reading to be contained twice (so the subjects could repeat them, without worrying too much about getting stuck in the middle or stammering). The reason for setting the number of times of repetition at 10 came from some pilot studies. Some college students had been asked to repeat the same sentences that were going to be used in the later experiment and most of them needed to try to repeat at least ten times to have the sentence on their lips. Hence, ten times. After repeating each sentence ten times, the subjects were made to count aloud backward by 3's beginning with the digit recorded after the sentence. This "distracting activity" lasted for 20 seconds.<sup>2</sup> After engaging in the intervening activity, the subjects were requested to say the sentence they had repeated ten times. The outcome was quantified by the number of syllables that the subjects were able to reproduce correctly and compared between the control group and the experiment group. For the analysis of the data, t-test was carried out. In order to see whether or not there is any significant difference between the two groups and also the correlation between the results and the subjects' general English ability, they were given a cloze test (see APPENDIX II) for later comparison.

### 3.3 Results

First, the results of t-test on the cloze test indicate some proximity of the experiment group with the control group ( $t=-0.8278$ , N.S.,  $df=75$ ). A noteworthy point here is that the t-value,  $-0.8278$  means that it is almost on the verge of meaningful separation. We will come back to this point later.

The second t-test was on the supposed difference between the performance of the control group and that of the experiment group. The results obtained from this show that there is no significant difference there ( $t=-0.4695$ , N.S.,  $df=75$ ). This seems to disprove the hypothesis that the rhythm accompanied instruction should have significant effect on the sentence memorization by means of chorus reading.

	N	Mean	SD	df	Outcome
Control group	38	7.711	3.619	75	t=-0.8278(N.S.)
Experiment group	39	8.410	3.698		

Table 1

	N	Mean	SD	df	Outcome
Control group	38	67.895	15.444	75	t=-0.4695(N.S.)
Experiment group	39	70.077	23.894		

Table 2

Incidentally, the correlation was tested between the scores on the cloze test and that on the experiment. As has been expected, it was revealed that the cloze test correlated with the experiment at the point of 0.5880 ( $p < 0.01$ ,  $df = 75$ ).

#### 4. Discussion

Statistically speaking, it turned out that the rhythm reading is not as effective in retention of the sentences as had been assumed. However, let us go back to the results of the first t-test. The t-value there was -0.8278, which is relatively high, meaning that one group showed higher scores than the other. And the higher group happened to be the control group. On the other hand, the outcome of the second t-test on the experiment, albeit with no significant difference, shows relatively low t-value of -0.4695. That means, we can at least see a tinge of evidence that shows that the two groups initially slightly apart from each other got closer even to a small degree. The future results could fluctuate. But at least it could give us an impetus to think further.

Further research was conducted to discern learner-effectiveness resulting from the use isochrony (Mikuma, 1993). In it, some college students, after 3 months of instruction with the rhythm device, were requested to answer the questionnaire concerning the possible effects on learning of rhythm-inculcation. The research indicates that the students responded positively in the degree of satisfaction for the class, feeling of grammatical improvement and that of general feeling of improvement in English, with their means and SDs at (1) 4.7 ; 0.683, (2) 3.9 ; 0.777, (3) 4.1 ; 0.682 respectively. This suggests that there is a certain amount of empirically

demonstrable effect.

Several reasons could be thought of for what came out this time. First, the subjects were not provided with a written text of what they were supposed to listen to and repeat. This could go against the long-standing principle of speech primacy, but realistically speaking, the use of chorus reading with a written text is observed, and this is where a connection can be made. Besides, for the exclusive purpose of testing the effect that rhythm accompaniment has, the use of a written text should be considered. That is, in this case the degree of repetition was so poor with both groups of subjects, that there were not enough syllables for the effect of rhythm to be evident. Second, according to the results of the other research, this method must be continued for at least a few months to be effective.

## 5. Conclusion

Although the outcome was not exactly what we wanted, at least we know now that the drum-beat-assisted instruction shows a sign of effectiveness. If this effectiveness is proved to be tenable, a lot of implications could be obtained. One of them is in the area of material development. When we think of example sentences for the learners to memorize, we can set the rule that says to see that those sentences should all fit into the isochronous rhythm, because they would make it easier for the students to internalize the grammatical rules.

What is left with us to do is to go on with the same line of research to find out about the differences that would occur between the subjects with the written text and those without. Another one could be the “within” type of research, while this study has been the “between” type.

In a previous study we have shown the necessity to shed light on pronunciation in teaching grammar. It is hoped that this study will add to the struggle that was started in the last research and help stir up concern among the in-service teachers or anyone with a healthy desire to bring change into language teaching in Japan.

## Notes

<sup>1</sup>The stress-timed/syllable-timed distinction was developed by Pike (1946) and Abercrombie (1967).

<sup>2</sup>20 seconds is said to be the boundary between what we call “short-term memory” and “long-term memory,” in the dichotomy, or more precisely, the boundary between “primary memory” and “secondary memory” in a three way distinction (the rest of which is called “tertiary memory”) by Ervin and Andrews (1970).

## Bibliography

- Abercrombie, D. (1967) *Elements of General Phonetics*. Edinburgh: Edinburgh University Press.
- Araki, K., Ed. (1991) *Eigo no Hatsuon to Eishi no Inritsu*. Tokyo: Eichosha.
- Boroda, M. G. (1991) "Models in Music: Towards the Quantitative Study." *Quantitative Linguistics*. 46: 123-162.
- Brandt, M. H. (1986) "Improving Auditory Sequencing Skills in the Kindergarten- Age Child through the Increased Instruction of Music." *M. S. Practicum*. Nova University.
- Call, M. E. (1985) "Auditory Short-term Memory, Listening Comprehension, and the Input Hypothesis." *TESOL QUARTERLY* 19.4: 765-781.
- Classe, A. (1939) *The Rhythm of English Prose*. Oxford: Basil Blackwell.
- Dauer, R. M. (1983) "Stress-Timing and Syllable-Timing Reanalyzed." *Journal of Phonetics* 11: 51-62.
- Domek, R. C. (1979) "Teaching Aural Skills to High School Students." *Music Educators Journal*. 65.5: 54-57.
- Ervin, F. R. & T. Andrews (1970) "Normal and Pathological Memory: Data and a Conceptual Scheme." In Quarton (eds.) *The Neurosciences*. 163-175.
- Fries, C. C. (1945) *Teaching and Learning English as a Foreign Language*. Ann Arbor: University of Michigan Press.
- Fry, D. B. (1958) "Experiments in the Perception of Stress." *Language and Speech* 1: 126-51.
- Giegerich, H. J. (1985) *Metrical Phonology and Phonological Structure: German and English*. Cambridge: Cambridge University Press.
- Glanzer, M. (1976) "Intonation Grouping and Related Words in Free Recall." *Journal of Verbal Learning and Verbal Behavior*. 15.1: 85-92.
- Halliday, M. A. K. (1967) *Intonation and Grammar in British English*. The Hague: Mouton.
- Hartman, T. G. (1982) "Memory Magic." Paper presented to the Working Group on the Psychology of Learning in Academic Settings.
- Igarashi, J. (1981) *Eigo Jugyōkatei no Kaizen*. Tokyo: Taishukan Shoten.
- Katz, S. B. (1989) "From Poetry to Prose: Sophistic Rhetoric and the Epistemic Music of Language." Paper presented at the annual meeting of the Conference on College Composition and Communication (40th, Seattle, WA, March 16-18)
- Kubozono, H. (1983) "Eigo ni Okeru Tojika no Rekishi ni Tsuite." *Eibungakukenkū*. 60.1: 133-147.
- Kubozono, H. (1988) "Tojika no Joken to Sono Mekanizumu: Onryotairitsu no Tsujiteki-kenkyū." *IVY* 19: 231-347.
- Lehiste, I. (1977) "Isochrony Reconsidered." *Journal of Phonetics* 5: 253-263.
- Lieberman, M. & A. Prince (1977) "On Stress and Linguistic Rhythm." *Linguistic Inquiry* 8: 249-336.
- Mikuma, Y. (1993) "Tōjika (isochrony) wo Mochiita Bunpōshidō: Jugyōjissen no Ankēto wo Motoni." *Chūgokushikoku Kyōikugakkai Kyōikugaku Kenkyūkiyō* 38. Vol 2: 13-18
- Mikuma, Y & Tanabe, Y. (1992) "Some Thoughts on English Sounds: Speculations on the

- Possible Effects of Explicit Grammar Learning on Pronunciation.” *Chūgokuchiku Eigokyōikuōgakkai Kenkyūkiyō* 22.
- Milman, C. (1979) “The Metronome and Rote Learning.” *Academic Therapy*. 14.3: 321-325.
- Nikolic, T. (1987) “Teaching a Foreign Language in Schools for Blind and Visually Impaired Children.” *Journal of Visual Impairment and Blindness*. 81.2: 62-66.
- Pike, K. L. (1946) *The Intonation of American English*. Ann Arbor: University of Michigan Press.
- Pratt, R. R. (1983) “International Symposium of Music Education for the Handicapped.” Complete Proceedings.
- Roach, P. (1982) *On the Distinction between ‘Stress-Timed’ and ‘Syllable-Timed’ Languages*. In Crystal (ed.)
- Shehan, P. K. (1987) “Effects of Rote Versus Note Presentations on Rhythm Learning and Retention.” *Journal of Research in Music Education* 35.2: 117-126
- Shen, Y. & Perterson, G. G. (1962) *Isochronism in English*. University of Buffalo Studies in Linguistics, Occasional Papers, 9: 1-36.
- Steel, J. (1775) *An Essay Towards Establishing the Melody and Measure of Speech*, reprinted in 1969. Menston: The Scolar Press.
- Stevick, E. W. (1976) *Memory, Meaning and Method*. Massachusetts: Newbury House.
- Van, U. & Antonio, M. J. (1981) “Early Diagnosis of Those Multiple Handicaps in Prelingually Profoundly Deaf Children Which Endanger an Education According to the Purely Oral Way.” *The Teacher of the Deaf*. 5.4: 112-127

## APPENDIX I

英語総合学力考査 ( ) 番 氏名 ( )  
( ) 内を適当な英語で埋めよ。

We all say that we want ( ). And this is good. It is good ( ) us to have friends. Happiness ( ) doubled when we tell it to ( ) friend. Sadness is cut in half ( ) we tell it to a friend.

( ) old proverb says that a friend ( ) need is a friend indeed. This ( ) that there are two kinds of ( ). One kind runs away when we ( ) in trouble. The other kind stays ( ) even when there is trouble.

In ( ) sixth grade I knew a very shy ( ). She never talked. She never played ( ) anyone. She had no friends. I ( ) sorry for her. Every day I tried ( ) say a kind word. “I like ( ) new pencil box.” “The Ume flowers ( ) your garden are pretty.” “Let’s go ( ) the zoo next Sunday.” She ( ) answered a word. But on the last ( ) of school she was waiting at ( ) gate. She put her mouth to ( ) ear and whispered, “Thank you ( ) everything!” We have been friends since ( ).

## APPENDIX II

The sentences used for the taped material:

1. I saw him swim in the pool.
2. I heard him sing a song today.
3. How often have you been to Tokyo?
4. She tried to write the letter in French.
5. I must remember to do my homework.
6. If the price is not too high, she will buy it.
7. She was kind enough to show me around the school.
8. It's kind of you to show me the way to the hospital.
9. He is not only a writer but also a singer.
10. If the weather is nice tomorrow, we will go on a picnic.