

Speech Rate and Young EFL Learners' Listening Comprehension

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Abstract

Speech rate is one of the salient characteristics that speakers modify their speech for second or foreign language learners to gain more comprehensive input (Krashen, 1987). For young EFL learners, a slower speech rate can be a critical factor that helps them properly process linguistic input and increase self-confidence in listening comprehension. The present study investigated the effect of speech rate on listening comprehension performance among young EFL learners in Taiwan. Sixty-six junior high school students from two homogeneous classes participated in two elementary-level listening comprehension tests. All participants took the first test at the delivery rate of 116 words per minute (wpm) set by Taiwan's General English Proficiency Test. In the second test, the two classes of participants were examined at two slower delivery rates—98 wpm and 58 wpm, respectively. Results reveal a facilitating effect of the slightly slower speech rate of 98 wpm on the participants' listening comprehension; however, slower speech does not make a significant difference at the much slower rate of 58 wpm. The results of the study are then discussed, and implications are drawn.

Keywords: listening comprehension, speech rate, Taiwan, young EFL learners

1. Introduction

Listening is fundamental to effective communication and critical for language acquisition. For the development of communicative competence, listening comprehension gives the appearance of other language skills and helps learners become fully proficient in a target language (Vandergrift & Goh, 2012). To attain excellent proficiency, second language (L2) listeners need comprehensive input for acquisition to occur (Krashen, 1980). Native speakers (NS) thus modify their speech for nonnative speakers (NNS) to comprehend the information conveyed (Krashen, 1987). Listening comprehension is essential and a prerequisite for learners to become proficient users of L2 (Abdurakhmonova & Abduvohidova, 2023); it can trigger long-term success in L2 learning (Zhang, 2023). However, in many educational systems, particularly in learning English as a foreign language (EFL) context, because reading, grammar, and vocabulary are foregrounded, many learners do not give enough attention to listening; they cannot understand English even though they have been learning this language for a long time (Abdurakhmonova & Abduvohidova, 2023).

To improve L2 learners' listening, researchers have been trying to identify factors that increase comprehensive input. In an L2 classroom, modified speech, also known as foreigner talk, appears necessary as the modification can make linguistic input more comprehensive for the learners (Kelch, 1985). A slower speech rate is one of the critical characteristics that speakers modify their speech for learners to gain more comprehensive input (Krashen, 1987). Researchers, therefore, have been investigating how speech-rate modification affects L2 learners' listening comprehension (e.g., Fujita, 2017; Griffiths, 1990, 1992; Hayati, 2010; Jensen & Vinther, 2003; Rader, 1990). Most research proposes that a slower speech rate can facilitate learners' listening comprehension. However, each study is not readily applicable to another classroom setting because the learning contexts and the types of learners differ.

In EFL learning contexts, speakers' fast speech can cause considerable difficulties in the listening comprehension of elementary-level learners (Chuang, 2008). Many learners may therefore dislike listening comprehension practice in the classroom and even object to the assessment of listening proficiency in formal exams (Wu, 2003). However, as Krashen (1980) indicates, listening comprehension is essential for L2 learners to obtain more linguistic input; comprehensive input can facilitate language learning. Thus, the goal of the current study is to

investigate if speech-rate modification can facilitate young EFL learners' listening comprehension and find a suitable speech rate for these learners. The study aims to examine the effect of slower speech on listening comprehension performance among young EFL learners.

2. Literature Review

The literature review section discusses how various speech rates affect the listening comprehension of L2 learners. Listening comprehension is challenging for L2 learners to improve and often causes them incredible frustration (Buck, 2018; Elkhafifi, 2005). Moreover, L2 learners are invariably terrified of fast speeches, leading to a lack of self-confidence in their abilities (Abdurakhmonova & Abduvohidova, 2023). In a language classroom, learners usually play a minor or passive role in deciding the speech rate of the listening text (Gnoheim, 2013). It is widely assumed that learners should be capable of grasping the meaning of the listening text at various speech rates (Abdurakhmonova & Abduvohidova, 2023). However, some studies have proven that slow-down recording or speech in the classroom can help learners improve their listening comprehension (Fujita, 2017; Griffiths, 1990, 1992; Hayati, 2010; Jensen & Vinther, 2003).

Among earlier researchers who studied speech modification, Griffiths (1990, 1992) focused on speech rate as the sole parameter. At first, Griffiths (1990) studied three speech rates—slow, average, and fast—to see if there was a facilitative effect on EFL learners' listening comprehension. Griffiths (1990) defined 100 words per minute (wpm) as slow, 150 wpm as average, and 200 wpm as fast. The participants were 15 adult Japanese EFL learners of lower-intermediate level. After listening to three passages with the slow, average, and fast speech rates, participants were asked to answer 15 true-or-false questions. The results showed that participants' scores collected at both the slow and the average rates were significantly higher than those collected at the fast rate. Nevertheless, there was no significant difference between scores obtained at the slow and the average rates. Griffiths (1990) concluded that faster speech appeared to lessen lower-intermediate learners' comprehension; slower speech did not benefit the learners too much.

Later, Griffiths (1992) conducted a similar study by comparing three different speech rates—slow: 128 wpm; average: 188 wpm; fast: 250 wpm. Japanese lower-intermediate EFL learners were tested with three passages delivered at the slow, average, and fast speech rates. Participants' scores collected at the slow rate were significantly higher than those at both the average and the fast rates. However, there was no significant difference between the average and the fast rates. Due to the result that lower-intermediate learners benefited from the slow speech rate, Griffiths (1992) advocated that there was a need to reconsider teachers' speaking at regular rates to beginners or lower-intermediate learners in the classroom. The inconsistency between Griffiths' (1990, 1992) two studies may result from the two sets of different speed ranges employed. It is not easy to give one common standard to define slow, average, and fast speech rates. However, Griffiths' (1990, 1992) studies demonstrate that a slower speech rate can facilitate the listening comprehension of lower-intermediate EFL learners.

While Griffiths' (1990, 1992) studies suggested a positive effect of slower speech, some researchers found no significant effect that slower speech produced on L2 listeners' comprehension. For example, Rader (1990) studied how slower speech influenced the listening comprehension of college students of Spanish. Since the result of the study did not support a significant effect for slower speech, Rader (1990) explained that, in addition to speech rate, there were several other factors contributing to the nonsignificant result, including learners' background knowledge, the difficulty of the text, and the fact that the listening comprehension check was not conducted right after exposure. Despite the nonsignificant result of the study, Rader's (1990) study provides a helpful insight that the effect of speech rate on listeners' comprehension may often be intertwined with other factors. Fujita (2017) examined the effect of three intertwined factors—speech rate, background noise, and text types—on EFL college students' listening comprehension. The participants listened to eight different types of dialogues with different conditions in the speech rate (fast or slow), the background noise (silent or noise), and the types of learning materials (textbook or film), and their listening comprehension was assessed. Results indicated that the learners performed best when textbook materials were used with slow speech and without background noise; the learners' score was the lowest when they listened to film materials at a fast speech rate and with background noise. Fujita (2017) concluded that it was almost impossible to identify which of the three factors most significantly affected the learners' listening comprehension.

Because language learning is a long and complex process, some researchers started to believe that normal or natural speech could significantly affect L2 listeners' comprehension in the long run. For example, Hayati (2010) studied the relationship between speech rate and listening comprehension among EFL sophomores in Iran. For two weeks, one group of students was exposed to natural speech and the other to slow speech. The study found

that both natural and slow speech rates helped the EFL learners enhance their listening comprehension. However, Hayati (2010) believed that the natural speech rate could make more significant improvements than the slow one in the long run.

Previous research on how speech rate affected L2 or EFL listening comprehension paid considerable attention to adult learners, particularly college students. Few studies can be found concerning the effect of speech rate on young EFL listeners' comprehension. However, the issue is worth noticing because slower speech is one of the essential characteristics that help beginners or elementary-level learners gain more comprehensive input (Krashen, 1987). In addition, early exposure to increased comprehensive input will pave the way for better and more successful learning in the future (Krashen, 2006). Chuang (2008) surveyed the listening difficulties of young EFL learners, and her study found that speakers' "fast speed was the main obstacle" (p. 84) for these listeners. Nevertheless, Chuang's (2008) study did not provide further evidence concerning how speech rate affects young EFL learners' listening comprehension. The present study thus fills the gap by investigating the effect of speech rate on young EFL learners' listening comprehension. Research questions guide this study include:

- (1) Do young EFL learners perform better in a listening comprehension test delivered at a slower speech rate?
- (2) What is a suitable speech rate for these learners?

3. Method

3.1 Participants

Sixty-six students in Grade 8 were invited to participate in this study. The students came from two classes at a mid-size public junior high school in northern Taiwan. Most students started their English learning in Grade 3 of elementary school, and a few began earlier in private kindergartens. These students had four English class periods every week, each lasting 45 minutes. Although English was an integrated skills course in public junior high schools in Taiwan, most teachers tended to pay more attention to students' reading comprehension proficiency since its importance was heavily emphasized on the senior high school entrance exam. Also, in Taiwan's public junior high schools, no individual course was explicitly offered to improve students' listening skills. The two classes of students were taught by the same teacher, and the language the teacher used to instruct the students was Mandarin Chinese.

The two classes were designated as Class A and Class B, and each class was composed of 33 students. An English listening proficiency test (see 3.2 Instrument) was used to examine the homogeneity of the two classes. The homogeneity test found no significant difference between the two classes in the performance of the listening proficiency test (see 4. Results and Discussion). In other words, Class A and Class B were homogeneous groups. In order to meet the teacher's schedule and convenience, the two classes were examined just one more time for the effect of two slower speech rates. Considering that, it would be more time-saving and avoid unnecessary trouble for the teacher and the students.

3.2 Instrument

The instrument employed to investigate the effect of speech rate was two sample elementary-level listening comprehension tests of General English Proficiency Test (GEPT)—Test 1 and Test 2. GEPT is a well-established domestic English language proficiency test developed by Taiwan's Language Training and Testing Center (LTTC). It has been recognized that numerous Taiwanese colleges and organizations adopt the GEPT test as a threshold for graduation or promotion. Four language skills—listening, reading, speaking, and writing—are tested in this criterion-referenced exam. Junior high school graduates in Taiwan are expected to have English proficiency at GEPT elementary level (Wu, 2012). As described on the official website of GEPT (GEPT, 2023), "[t]est-takers who pass this level have basic ability in English and can understand and use rudimentary language needed in daily life." Therefore, following the participants' education level, the GEPT elementary listening comprehension tests were adopted. The tests included three common question types: Picture Description, Answering Questions (Best Responses), and Conversations. There were ten multiple-choice questions for each question type. Each of the tests included 30 questions. The total score for each test was 30 in this study for simplicity and convenience of calculation.

3.3 Procedure

At first, the two classes of participants were assessed in Test 1 at the delivery rate of 116 wpm set by GEPT. According to the teacher, many students complained that the delivery rate of 116 wpm was too fast for them. Thus, we slowed down the delivery rate in Test 2 to resolve the students' complaints. After several discussions with the teacher, the delivery rate was redeveloped by reducing 116 wpm to 98 and 58 wpm for the two classes

to be tested in Test 2 (see Table 1). The slightly slower speech of 98 wpm was aimed at satisfying average students' needs. Three average students were invited to check the acceptance of the 98-wpm delivery rate before it was used to test Class A in Test 2. We also wished to investigate the effect of a noticeably slower rate in Test 2. Therefore, based on the teacher's suggestion, three lower achievers were examined, and after collecting their opinions, we decided to assess the effect of the 58-wpm delivery rate as well. In summary, all participants took Test 1 at the delivery rate of 116 wpm set by GEPT; the next week, Class A took Test 2 at the 98-wpm rate and Class B at the 58-wpm rate.

Table 1. Speech Rates of Tests 1 and 2 for Classes A and B

Class	Speech Rate of Test 1	Speech Rate of Test 2
A	116 wpm	98 wpm
B	116 wpm	58 wpm

3.4 Data Analysis

Paired samples t-tests were employed to compare the scores collected from Test 1 and Test 2. Paired samples t-tests are suitable for the data analysis of this study in that performance of the same participants is assessed more than once (Dörnyei, 2007). In the current study, the two groups of participants were all tested in Test 1 at the delivery rate of 116 wpm, and later the two groups were examined at two slower rates—98 and 58 wpm, respectively, in Test 2. Paired samples t-tests were then performed to see if there were significant differences caused by the two slower speech rates.

4. Results and Discussion

Research questions are answered and discussed along with the results of the study in the following:

4.1 Do Young EFL Learners Perform Better in a Listening Comprehension Test Delivered at a Slower Speech Rate?

A chi-square test of homogeneity found no significant difference between Class A and Class B in the performance of Test 1, $X^2(20, N = 66) = 18.486, p = .555$). That is, the two classes were homogeneous groups. Paired samples t-tests were then conducted to see if there was a significant difference between each class's performance in Test 1 and Test 2. Table 2 shows the paired samples statistics for Class A's performance in Test 1 ($M = 20.15, SD = 7.35$) and Test 2 ($M = 21.64, SD = 5.78$). A paired samples t-test was conducted to compare the two mean scores (see Table 3). The result indicated a significant difference ($t = 2.22, p < .05$) between Class A's performance in Test 1 and Test 2. In other words, Class A performed better at the slightly slower delivery rate of 98 wpm than at the rate of 116 wpm.

Table 2. Paired Samples Statistics: Class A

	Speech Rate	N	Mean	Std. Deviation	Std. Error Mean
Test 1	116	33	20.15	7.35	1.28
Test 2	98	33	21.64	5.78	1.01

Table 3. Paired Samples t-Test: Class A

	Paired Difference			95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Difference	Lower	Upper			
Test 2 - 1	1.48	3.85	.67	.12	2.85	2.22	32	.03*

Note. * $p < .05$

For Class B, Table 4 presents the paired samples statistics in Test 1 ($M = 21.06, SD = 4.89$) and Test 2 ($M = 21.79, SD = 5.95$). A paired samples t-test revealed that there was no significant difference ($t = 1.25, p > .05$) between Class B's performance in Test 1 and Test 2 (see Table 5). That is, the remarkably slower speech of 58 wpm did not cause a significant effect on Class B's listening comprehension performance.

Table 4. Paired Samples Statistics: Class B

	Speech Rate	N	Mean	Std. Deviation	Std. Error Mean
Test 1	116	33	21.06	4.89	.85
Test 2	58	33	21.79	5.95	1.04

Table 5. Paired Samples t-Test: Class B

	Paired Difference				95% Confidence Interval of the Difference	t	df	Sig. (2-tailed)	
	Mean	Std. Deviation	Std. Error Difference	Error					
									Lower
Test 2 - 1	.73	3.35	.58		-4.46	1.91	1.25	32	.22

To sum up, the current study demonstrates that young EFL learners perform better in a listening comprehension test delivered at a slower speech rate. The result corresponds to Krashen's (1987) claim that slower speech is one of the crucial characteristics of modified input for L2 comprehension. In addition, the result suggests that slower speech gives the learners more processing time and more explicit segmentation of the structures in the input (Hatch, 1983). According to Kelch (1985), slower speech provides more precise articulation and fewer vowel reductions, and word boundaries are more easily identifiable. In essence, slower speech offers an extensive facility of comprehension for young EFL listeners. As a result, the current study provides empirical evidence that slower speech facilitates young EFL learners' listening comprehension.

4.2 What is a Suitable Speech Rate for These Learners?

Based on the study's results, the slightly slower speech rate of 98 wpm is more suitable for EFL junior high school students. In other words, compared to the speech rate of 116 wpm set by GEPT, the slightly slower rate can significantly facilitate these young EFL learners' listening comprehension. Faster speech tends to frighten students and undermine their self-confidence in listening comprehension (Abdurakhmonova & Abduvohidova, 2023).

However, it should also be noted that slower speech would not cause a statistically significant difference when it was too slow at the delivery rate of 58 wpm. This result is because speech rate may not be the sole factor influencing learners' listening comprehension when other factors such as vocabulary size, background knowledge, and syntactic proficiency should also be considered. In other words, with limited linguistic proficiency and background knowledge of the learners, a slower speech rate may produce a small effect, as indicated in this study. Still, further investigation into this issue is needed.

Finally, the slightly slower speech rate of 98 wpm appears helpful for a particular question type in the listening comprehension test. For Answering Questions, Class A's correct rate increases significantly by 7.47 percent (from 64.00% to 71.47%; see Table 6). That is, the delivery rate of 98 wpm helps the students pick up the best response to a question. Tables 6 and 7 show the percentage of correct responses of Classes A and B for all question types in Tests 1 and 2. In the current study, the most accessible question type for all students is Picture Description. The implication is that visual aids may be necessary for elementary learners' listening comprehension.

On the other hand, Answering Questions is most challenging for all participants at the delivery rate of 116 wpm (see Tables 6 and 7). In other words, fast speech can pose a significant obstacle for these listeners. Thus, when the fast delivery rate is reduced to 98 wpm, Class A's ability to pick up the best response for a question improves noticeably. As shown in Table 6, the percentage of Class A's correct responses to Answering Questions increases considerably (from 64.00% to 71.47%). However, it is not the case for Class B (see Table 7), so further examination is needed to examine this particular effect.

Table 6. Class A's Correct Rate of Each Question Type at Different Delivery Rates

Question Type	Correct Rate at 116 wpm	Correct Rate at 98 wpm
Picture Description	80.66%	82.06%
Answering Questions	64.00%	71.47%
Conversations	65.71%	64.41%

Table 7. Class B's Correct Rate of Each Question Type at Different Delivery Rates

Question Type	Correct Rate at 116 wpm	Correct Rate at 58 wpm
Picture Description	84.86%	85.56%
Answering Questions	65.95%	64.72%
Conversations	67.57%	67.78%

5. Conclusion

The current study investigated the effect of speech rate on the listening comprehension performance of young EFL learners. Speech delivery was redeveloped by reducing the original rate of 116 wpm (set by GEPT) to two slower ones—98 and 58 wpm—for two homogeneous classes to be tested, respectively. Results of the study provide empirical evidence for a beneficial effect of slower speech at the 98-wpm rate. That is, a significant relationship exists between slower speech and young EFL learners' listening comprehension. However, slower speech makes no significant difference when it is much slower at the rate of 58 wpm. The study indicates that the learners perform better at a slightly slower speech rate of 98 wpm, so the speech rate set by GEPT is too fast for young EFL listeners. As a theoretical implication, slower speech, one of the most salient characteristics of modified input, makes listening easier and provides more comprehensive input for young EFL learners. In addition, slower speech can help enhance the learners' self-confidence in listening comprehension. As a pedagogical implication in the classroom, a teacher is suggested to speak English moderately slower and use audio materials at a slower delivery rate. By doing so, the learners can make the most of comprehensive input to increase their English listening proficiency and gain more self-confidence in the listening task.

At last, the current study has limitations. First, the study regarded speech rates of 98 and 58 wpm as slow. The effect of the two slower rates was observed, but the effect was limited to the comparison with the rate of 116 wpm set by GEPT. Therefore, the effect of speech rate determined in the current study was evaluated to a limited extent. Second, the sample size was small, and the participants were from one junior high school. The study's results might not be generalizable to all young EFL learners. Third, the proficiency levels of individual learners, such as high achievers and low achievers, can be more carefully considered. Altogether, future research may try to remove these limitations. As further research paths, a wide variety of speech rates can be examined; younger EFL learners, such as elementary school students, should be included; details about how high achievers and low achievers benefit from slower speech differently can be revealed.

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