교육학석사학위논문

The Effect of Speech Rate on Korean EFL Learners' Performance on the TEPS Listening Test

발화 속도가 한국인 영어학습자의
텝스 듣기 평가 수행에 미치는 영향

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정 민 정

The Effect of Speech Rate on Korean EFL Learners' Performance on the TEPS Listening Test

by

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The Effect of Speech Rate on Korean EFL Learners' Performance on the TEPS Listening Test

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Abstract

This study attempts to investigate the effect of speech rate on Korean EFL learners' performance on TEPS (Test of English Proficiency developed by Seoul National University) listening test. Improving communicative competence is one of the important objectives in English education in Korea. Listening and speaking are the basic skills for communication and listening as a receptive skill is said to be more important than speaking which is a productive skill. In this context, many researchers have emphasized speech rate as one of the key factors affecting listening comprehension. Among the factors affecting listening comprehension, this study focuses on speech rate and its effect on listening comprehension.

In this study, a total of 30 Korean EFL advanced university students took four TEPS listening tests with different speech rate. The speech rate of each test is 140, 160, 180, 200 WPM (words per minute), respectively. According to Pimsleur, Hancook, and Fiurey (1977), 140 WPM is moderately slow, 160 and 180 WPM are average and 200 WPM is moderately fast. The tests were edited using the software, GoldWave. The participants took one test per day and the results were compared and analyzed using one-way ANOVA.

For the total score, there was a significant difference among the tests and

the score of the slowest listening test was the lowest. This means that slow speech rate is not always helpful for learners, especially when they are at the advanced level. In addition, TEPS listening test has four different parts. Part 1 is finding an appropriate response to a spoken statement. Part 2 is finding an appropriate response to the three spoken statement. Part 3 is answering questions after listening to a short conversation and part 4 is answering questions after listening to a short lecture. The scores of each part also showed a significant difference among the tests except part 2. In part 1, the test with the fastest speech rate showed the highest score. It is because the difficulty of the part 1 of the fastest test was slightly easier than the other tests. Part 2 showed no difference among the tests. The learners performed worst in the slowest test in part 3. This result was similar to the result of the total scores. Finally, in part 4, the test with 160 WPM had higher score than all the other tests. That is, in part 4, which is answering questions after listening to a lecture, the speech rate had a significant effect on the learners' comprehension. This is because of the different test characteristics and speech rate between conversation and lecture.

Overall, the result of the present study indicated that the speech rate had little effect on the learners' performance on TEPS listening test with faster speech rate except for part 4 which is answering questions after listening to the lecture. However, the slow speech rate affected learners' performance in part 3 and part 4. It means that slow speech rate would not always be helpful for

advanced learners. Therefore, it would be recommended to consider the different

types of test items when making TEPS listening test and practice books.

Key Words: Speech rate, Listening test, TEPS, Korean university students

Student Number: 2013-21378

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CHAPTER 1.

INTRODUCTION

This chapter introduces the research by presenting the motivation and organization of the study. Section 1.1 discusses the background and purpose of the study. Section 1.2 presents the research questions, and the overall organization of the study is outlined in Section 1.3.

1.1 Background and Purpose of the Study

One of the most important objectives of the English education in Korea is improving learners' communicative competence. As listening and speaking are the basic skills for communication, listening has been an important research area for English education. Compared to speaking which is a productive skill, listening is a receptive skill and Johns (1981) found that receptive skills are more important than productive skills. Therefore, listening is very important and basic skill in language acquisition. Rivers (1980) also stated that listening is a basic skill for acquiring communicative competence.

There are many factors affecting listening: age, background knowledge, language proficiency, hesitation, pause, stress, speech rate, L1 and L2 difference, syntactic modification, redundancy, discourse marker, and task type (Freed, 1995; Griffiths, 1991; Rubin, 1994). Among these factors, the present study will focus on speech rate. Many researchers have emphasized the importance of speech rate (Buck, 2001; Cha, 2000; Jensen & Vinther, 2003). The importance of speech rate also has been studied by many researchers in Korea (Cha, 2000; Kwon, 2011; Oh, 2014).

Speech rate is an important factor affecting listening comprehension. There has been a substantial amount of research on the effect of speech rate on listening comprehension. Although there is no consensus about the effect of speech rate, research related to speech rate continues to be conducted. Some researchers concluded that slower speech rate is more helpful for learners (Flaherty, 1979; Grrifiths, 1990b, 1992; Kelch, 1985; McBride, 2011; Zhao, 1997). On the other hand, others suggested that faster speech rate is more effective in learning English (Blau, 1990; Griffiths, 1990a; Smith, 1980). Rivers (1981) and Smith (1980) stated that learners have difficulty in real communication because the native speakers speak with faster speech rate. Richards (1983) and Rost (1991) also suggested that learners must be exposed to faster speech rate. In addition, almost all the research conducted in Korea has concluded that the speech rate of current English listening test and materials

should be faster as learners have shown no difference in performance between slow and fast speech rate (Choi, 2009; Heo & Yoon, 2003; Park, 2014; Seo, 2010; Shin, 2003; Yu, 2012). In this context, the present study also investigates the effect of speech rate on learners' performance on English listening test. Compared to the research conducted in Korea that has focused on College Scholastic Ability Test (CSAT) and the effect of speech rate on the test, this study will focus on Test of English Proficiency developed by Seoul National University (TEPS) and the effect of speech rate on that test.

There have been many studies related to the effect of speech rate on CSAT in Korea and they concluded that faster speech rate is necessary for helping the learners improve their listening skills (Heo & Yoon, 2003; Kim, 2008; Lee, 2004; Lim, 2004; Park, 2014). In addition to CSAT, TEPS is also developed in Korea but there is little research on the effect of different speech rate on the TEPS listening test.

TEPS and CSAT have many different characteristics. While all the questions and answers are written in CSAT, TEPS listening test does not give questions and answering options beforehand and they are provided in spoken language. The total length of two the tests is also different. CSAT listening test takes less than 20 minutes, but TEPS listening test is about an hour long. In addition, more adult learners take TEPS while CSAT is for high school students. As a result, this study will focus on TEPS listening test and the effect of speech

rate on it because there has been little research of the TEPS listening test even though TEPS has distinctive characteristics.

1.2 Research Questions

The focus of the present study is to investigate the effect of speech rate on Korean EFL learners' performance on the TEPS listening test. It investigates the effect of speech rate not only on the learners' performance in general but also on their performance on each part of the TEPS listening test. TEPS listening test consists of four different parts. Part 1 is finding an appropriate response to a spoken statement and part 2 is finding an appropriate response to the three spoken statement. Part 3 is answering questions after listening to a short conversation and part 4 is answering questions after listening to a short lecture. As the characteristics of these four parts are different, it might influence learners' performance on the test. Therefore, it is also necessary to investigate the effect of speech rate on each part. In order to investigate these issues, this study addresses the following research questions:

1. Will learners' performance on the TEPS listening test be different as the speech rate changes?

2.   Will learners' performance on the TEPS listening test with different

speech rate be different with each part of the test?

1.3 Organization of the Thesis

The present study consists of five chapters. Chapter 1 introduces the background and purpose of the study and presents the research questions. Chapter 2 presents an overview of the literature on speech rate. It includes research in foreign countries and Korea. In chapter 3, the methodology of the study is described in terms of participants, instruments, data collection and data analysis. Chapter 4 presents the results and discusses the research findings. Finally, Chapter 5 concludes the research with the summary of the major findings, and presents the implications of the present study, limitations of the study and suggestions for the further studies.

CHAPTER 2.

LITERATURE REVIEW

This chapter presents literature review related to speech rate. Section 2.1 discusses speech rate as one of the factors affecting listening comprehension. It also discusses the definition of speech rate, measurement of speech rate and the standard speech rate. Section 2.2 deals with research related to speech rate in foreign countries and Korea.

2.1 Speech Rate

This section summarizes the importance of speech rate as one of the factors affecting listening comprehension in 2.1.1. In 2.1.2, the definition of speech rate, its measurement and the standard speech rate are discussed.

2.1.1 Speech Rate as a Factor Affecting Listening Comprehension

In the process of listening comprehension, there are various factors affecting the learners' comprehension and speech rate is one of them. Boyle

(1984) suggested the factors affecting listening comprehension and had teachers and students select the important factors among them. The factors were categorized by three groups – listener factors (experience, intelligence, background knowledge, physical and educational, intellectual, and psychological factors), speaker factors (language ability, production, speed of delivery, and personality), and factors in the material and medium (language, difficulty, acoustic environment, and provided support). After all, the teachers and students selected the speed of delivery as the 9th and 6th most important factors, respectively.

Rubin (1994) classified five major factors – text characteristics, interlocutor characteristics, task characteristics, listener characteristics, and process characteristics. Speech rate was included in acoustic-temporal variables in text characteristics. Underwood (1997) found that speed of delivery, listeners' vocabulary, recognizing the signals, interpretation of meaning, concentration, and learning habits made listening difficult for students. Speech rate is also selected as a factor affecting listening comprehension.

Brown (2007) proposed clustering, redundancy, reduced forms, performance variables, colloquial language, rate of delivery, stress, rhythm, intonation and interaction as factors making listening difficult. Many other studies have also mentioned speech rate as an important factor in listening comprehension (Cucchiarini *et al*., 2000; Strik *et al*., 2000; Towell *et al*., 1996).

In addition, Bachman (1990) and Bachman and Palmer (1996) mentioned the degree of speededness as a factor affecting language testing.

In Korea, there has been some research on the factors affecting listening comprehension. Cha (2000) surveyed Korean EFL learners' difficulties in listening English news and found 19 factors affecting the comprehension. Among the 19 factors, speech rate was the second important one.

Kwon (2011) observed and interviewed 2 high school students and summarized the factors that students felt difficulty with listening. There were 9 linguistic factors including speech rate, 12 instructional factors, 10 psychological factors, and 6 strategic factors. When the factors were arranged by importance, speech rate was the 8th although how much speech rate affected the students' performance could not be determined.

Oh (2014) used listening diaries, questionnaire and interview to classify the listening barrier factors for Korean high school students. She identified vocabulary, concentration, word recognition, speech rate, intended message, phonological problems, background knowledge, syntactic complexity and memory capacity as the listening barrier factors. In particular, students had difficulty with fast speech rate and it was the most difficult factor in listening. In short, speech rate is proposed as an important factor affecting listening comprehension both in foreign countries and Korea.

2.1.2 Speech Rate

Among the factors affecting listening comprehension, the focus of the present study is speech rate. As shown in 2.1.1, many researchers have emphasized the importance of speech rate as a factor affecting listening comprehension and making listening difficult.

Speech rate is defined as the speed of speech. The term is used in many different ways despite the same meaning such as the speed of delivery, the rate of delivery, or the degree of speededness. Bachman (1990) stated that 'the input may be perceived as speeded if it is presented at a rate that calls the test-taker's attention to speed as a factor in performance (p. 128).'

Speech rate can be calculated by the phoneme, morpheme, syllable, or words per second or minute. Generally, syllables per minute (SPS), phonemes per second (PPS), syllables per minute (SPM), words per second (WPS), and words per minute (WPM) are used as the unit in measuring speech rate. Among these five, the present study selected words per minute (WPM) as a unit of speech rate as it is the most widely used in literature (Buck, 2001). Griffiths (1990) stated that using WPM seems to be reasonable in L2 research although it needs to be more carefully defined.

Some researchers have tried to define and classify the normal speech rate of native speakers. Blau (1990) suggested 170 WPM as normal speech rate.

Pimsleur, Hancook, and Fiurey (1977) suggested the standard speech rate using radio announcers' speech. It is most frequently used in traditional classification. The standard of speech rate is summarized in Table 2.1.

Table 2.1

Standard Speech Rate (Pimsleur, Hancook, & Fiurey, 1977)

Standard	Speech Rate
Fast	Above 220 WPM
Moderately fast	190-220 WPM
Average	160-190 WPM
Moderately slow	130-160 WPM
Slow	Below 130 WPM

As the standard speech rate of Pimsleur, Hancook, and Fiurey (1977) had limitation that only radio announcers' speech was used in analyzing speech rate, Tauroza and Allison (1990) suggested an upgraded standard of speech rate. They suggested four different types of speaking situation – radio, lecture, interview and conversation – and analyzed the range of speech rate in each situation. The result is summarized in Table 2.2.

Table 2.2

Range of Speech Rate (Tauroza & Allison, 1990)

	Radio	Lecture	Interview	Conversation
Faster than Normal	190	185	250	260
Moderately Fast	170-190	160-185	210-250	230-260
Average	150-170	125-160	160-210	190-230
Moderately Slow	130-150	100-125	120-160	160-190
Slow than Normal	130	100	120	160

Note. The unit of speech rate is WPM.

Compared to Table 2.1, the speech rate of conversation and interview is much faster than the speech of radio announcers, but the standard of speech rate in radio situation is slower. Therefore, in the present study, both Pimsleur, Hancook, and Fiurey (1977) and Tauroza and Allison (1990) were considered in adjusting the speech rate of the TEPS listening test and analyzing the result of the learners' performance.

2.2 Research on the Effect of Speech Rate

This section introduces the previous research on the effect of speech rate

in foreign countries in 2.2.1. The research of the effect of speech rate in Korea will follow in 2.2.2.

2.2.1 Research in Foreign Countries

Among the factors affecting listening comprehension, speech rate is one of the important factors. There has been a substantial amount of research on the effect of speech rate, but there is no definite conclusion in this research area. As Flaherty (1979) suggested, rate-controlled speech can be used for various activities in language class and researchers have tried to show the efficiency of rate-controlled speech. Buck (2001) also mentioned that there is research looking at the relationship between speech rate and comprehension as the speech rate has some influence on listening comprehension.

On the one hand, there is research suggesting that slow speech rate is helpful for learners' listening comprehension. First, Kelch (1985) investigated the effect of speech rate on the university students from various backgrounds having intermediate proficiency level. Kelch (1985) found that students' comprehension was better at the slower speech rate because of the increased processing time and the perception of the speech. Non-native students more easily comprehended the speech with slower speech rate.

Griffiths (1990b) investigated 15 young lower-intermediate elementary

school teachers taking in-service training course in a university. After listening to the texts with different speech rate, the participants scored lower at the fast speech rate (200 WPM) texts but there was no significant difference between slow (100 WPM) and average (150 WPM) speech rate texts. For lower-intermediate non-native speakers, fast speech rate hinders the listening comprehension.

Griffiths (1992) also investigated the relationship between speech rate and listening comprehension. The participants were 24 elementary school teachers taking in-service training courses and their proficiency level was between upper elementary and intermediate. The participants scored significantly higher on slow speech rate while there was no difference between average and fast speech rate.

Zhao (1997) investigated 15 intermediate to advanced non-native speakers taking an intensive English program. The result showed that the students better understood the text when they had control over speech rate and they reported that slow speech rate helped comprehension.

Most recently, McBride (2011) investigated 141 Spanish speakers learning English as a foreign language (EFL). There were four groups – fast speech rate group, speed choice group, pausing option group, and slow speech rate group – and the group trained by slow speech rate showed most gain on the task while the fast rate group showed the worst. It seemed that the slow speech

rate helped learners' comprehension, so McBride (2011) concluded that the exposure to the slow spoken input can encourage learners' comprehension and language acquisition.

On the other hand, there is also research suggesting that fast speech rate is helpful for learners' listening comprehension. Smith (1980) investigated the effect of slowed speech rate and found that the students who listened to the slow materials showed worse performance after training.

Blau (1990) found that reduced speech rate was not significantly helpful for 72 students in Poland and 100 students in Puerto Rico. Also, in the following study of the percentage of understanding monologues, mechanically reduced speech rate had a negative effect on comprehension and students' self-assessment. For both students from Poland and Puerto Rico, students with higher proficiency level of English reported that slowing the speech rate had a negative effect. Only the students with lowest proficiency level showed a positive effect of slowing.

Griffiths (1990a) suggested the use of authentic materials which has faster speech rate than the currently used materials. Ur (1984) stated that students may learn best from listening to speech that is an approximation to the real thing. Also, there is more research suggesting the benefit of the exposure to the natural speech rate while learning language (Richards, 1983; Rivers, 1981; Rost, 1991).

2.2.2 Research in Korean Context

There has been some research on the effect of speech rate on listening comprehension in Korea. Although there have been a mixed results in research introduced in 2.2.1, most of the Korean research on the relationship between speech rate and students' performance on CSAT listening tests suggested that the speech rate of CSAT listening test should be faster than the current one.

Lee (1998) investigated a total of 40 college of engineering freshmen using cloze test. Half of the students listened to texts with slow speech rate (110-120 WPM), while the other half listened to the much faster texts (200-210 WPM). The result showed that students performed better at slower speech rate. However, the fact that there is no definite criterion for students' proficiency level and that the students were all engineering major students is the limitation of this study. It was the only study that supported slow speech rate in Korea.

Heo and Yoon (2003) investigated CSAT listening tests of 70 high school third graders. This study used slow speech rate test with 141.2 WPM and fast speech rate test with 166.8 WPM. The result was that students did not show a significant difference between the two tests. 166.8 WPM is an average speech rate of native speakers, so Heo and Yoon (2003) suggested that faster speech rate would help accurately evaluate students' listening ability and help students adapt to authentic native speakers' conversation.

Shin (2003) investigated 5 middle school first grade male students whose proficiency level was all similar. The students listened to 20 percent faster listening materials two hours a week for 7 weeks. After the experiment, students' confidence level and listening comprehension increased. Also, they performed better on their school English listening tests, which had slower speech rate than the materials they practiced.

Choi (2009) investigated 101 middle school third grade students. The students took three sets of listening tests (two tests in each set) with 108, 129, 163 WPM, respectively. The result was that both low and high proficiency level students showed no difference among the tests. That is, speech rate had no significant effect on students' performance. As a result, it is necessary to increase the speech rate of the national English listening test and for teachers to let students be exposed to faster speech rate in classes.

Seo (2010) investigated 33 high school second grade students with low, intermediate, and high proficiency level. The students took four tests with different speech rate - 100, 140, 180, and 220 WPM. The result was that there was no significant difference among the four tests and all the proficiency groups showed the same result.

Yu (2012) investigated 88 high school first grade students and they were divided into three groups. Each group was respectively exposed to slow (130-150 WPM), average (150-170 WPM), and fast (170-200 WPM) speech rate

listening materials in class. The result showed that students who studied with fast speech rate listening materials performed better than the other two groups. She suggested that having students exposed to fast speech rate is more helpful to improve students' listening ability, especially for high proficiency level students.

Park (2014) also investigated a total of 241 high school first and second grade students with CSAT listening tests. Students took four tests with speech rate about 145, 160, 173, and 190 WPM, respectively. The result was that students scored lowest on the fastest test, but there was no difference among other three tests. The suggestion was that 1.2 times faster speech rate would be adequate for the students' acquisition.

There has also been some research criticizing the slow speech rate of CSAT English listening test and suggesting faster speech rate. Lee (2004) compared CNN news with CSAT English listening test in terms of speech rate and other phonological phenomena. Lee (2004) found that the two texts were very different and CNN news had faster speech rate than CSAT. Therefore, Lee (2004) concluded that it is natural that students have difficulty listening authentic conversation of native speakers because they are accustomed to slow and unnatural listening tests. Then, she suggested that the speech rate of CSAT listening test should be faster than it is now or students should be exposed to both slow and fast speech rate materials.

Lim (2004) analyzed CSAT listening tests from 2001 to 2004 and found

that the average speech rate was 145 WPM (moderately slow speed). Therefore, he suggested that the speech rate should be faster than now so that it could be helpful for students. Kim (2008) also analyzed CSAT listening tests and had similar results that the speech rate of CSAT is slower than native speakers' speech rate. Kim (2008) proposed that it should be adjusted to 160 to 190 WPM, which is native speakers' average speech rate.

As reviewed above, the research in Korea agreed that faster speech rate is necessary for the students. However, the research in Korea has been focused on CSAT and middle and high school students. Relatively little research was done with university students and there has been no research on TEPS listening test. The characteristics of TEPS listening test and those of CSAT listening test are different. Compared to CSAT, TEPS listening test does not give answering options beforehand and they are provided in spoken language. TEPS listening test is longer and consists of four different types of test. The target test-takers are also different as more adult learners take TEPS test. As there has been no research of the TEPS listening test despite the different and distinctive characteristics, the present study will focus on the effect of speech rate on the TEPS listening test. The effect of speech rate on the total score and the scores of each part will be both investigated. It is expected that this study would add more meaningful results related to the effect of speech rate and expand the understanding about speech rate.

In addition, most learners in Korea study English using textbooks or practice books for English tests such as CSAT, TEPS, Test of English as a Foreign Language (TOEFL), or Test of English for International Communication (TOEIC). As the score of English tests is important in Korea, the books related to English tests are the basic source of learning English. Therefore, it is important to make tests and practice books for the tests more helpful for students to learn English. This study might help test-makers and publishers develop more valid tests and books in the future.

CHAPTER 3.

METHODOLOGY

This chapter describes the methodology employed in the present study. Section 3.1 discusses the participants. Section 3.2 provides details on the instrument in terms of the selection of tests, verifying process of the selected tests and the editing method. The data collection is described in Section 3.3 and the data analysis is explained in Section 3.4.

3.1 Participants

This study was conducted from January to May, 2015. All the participants of this study were Korean EFL university students. As this study aims to investigate Korean EFL learners' performance on listening, all the participants had less than 6 months of experience in foreign countries. Also, as this study targets TEPS listening test, the participants had available TEPS scores. The total number of participants was 30, composed of 9 male and 21 female students. The age of the participants ranged from 21 to 28. The overall proficiency level of the students was advanced, which is TEPS score higher than

700, ranging from 722 to 935. The scores of 6 students were from 722 to 800 and 18 students scored from 801 to 900. The rest 6 students scored over 901. After all, the participants had advanced and near-native level of English proficiency.

3.2 Instruments

In this section, the selection of four listening tests and the method for adjusting the speech rate are described. The description of the tests employed in the present study is also included in this section.

3.2.1 Selected Tests

To investigate the effect of speech rate on Korean EFL learners' performance on TEPS listening tests, four listening tests were randomly selected from the published TEPS practice books. Each test was composed of 4 parts with 60 questions in total– each section with 15 questions. All of the questions including listening text, question, and options, are presented orally.

Part 1 is finding an appropriate response to a spoken statement. As illustrated in (1), a test taker listens to a single spoken statement and selects the appropriate answer among the four options.

(1)   M: Can I borrow your car tomorrow afternoon?

W: _____.

    (a) I didn't know you had one.

    (b) Of course, come pick it up anytime.

    (c) No, there wasn't enough time.

    (d) It would be much appreciated. [1]

(2)   W: Good afternoon, Dr. Markham's dental office.

M: Hi, can I schedule an appointment for tomorrow?

W: I'm afraid the doctor is fully booked through Friday.

M: _____.

    (a) I cannot come this week, though.

    (b) But my appointment is for Friday.

    (c) OK, then please put me down for next Monday.

    (d) I can come tomorrow afternoon, then. [2]

Part 2 is finding an appropriate response to the conversation of three spoken statement. As shown in (2), a test taker listens to a conversation between two people which consists of three statements and finds the appropriate response

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[1] http://www.teps.or.kr/ (Sample question on 6th, July)

[2] http://www.teps.or.kr/ (Sample question on 1st, June)

among the four options.

(3)　M: You won't believe what happened on my last day of work.

W: There wasn't any problem with your employer, was there?

M: On the contrary, my coworkers threw me a party to say goodbye.

W: Wow! Did you know about it?

M: No, they kept it totally secret until mid-afternoon.

W: What a nice gesture. It sounds like they'll miss you.

Q: What are the man and woman mainly discussing?

(a) How the man's colleagues prepared a farewell celebration for him.

(b) A party the man is planning for his last day of work.

(c) How the man overcame a problem he was having with his boss.

(d) A secret the man has been hiding from his coworkers. [3]

Part 3 is answering questions after listening to a short conversation. As exemplified in (3), a test taker listens to a short conversation between two people. The text and the question are orally presented twice. After listening to the text and question two times, test takers listen to the options and select the appropriate answer to the question. In part 3, the questions are composed of three types -

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[3] http://www.teps.or.kr/ (Sample question on 27th, April)

main topic, detail (finding the true statement about the conversation), and inference.

(4)   The earliest description of unicorns comes from the Greek writer Ctesias who described in his book Indica unicorns found in India. For Greek writers, India was a far-off and fantastic land, and they were convinced that unicorns were real. Traders to Persia brought stories of distant lands, which inspired Cstesias. Indica does offer a detailed description of unicorns, and while Indian myths do include unicorn-like creatures, scholars argue that the real animals were likely simply rhinoceros.

Q: What can be inferred from the lecture?
   (a) The unicorn was proven to be fake by a Greek writer.
   (b) Indica was not based on Cstesias's first-hand experience in India.
   (c) Cstesias was not trying to portray unicorns as real animals.
   (d) Persian traders made up stories about animals in India.[4]

Lastly, part 4 is answering questions after listening to a short lecture. The example question of part 4 is shown in (4). Similar to part 3, the text and the question are orally presented two times and then the options are presented at the end. That is, the test taker listens to the text and question twice and then listens to

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[4] http://www.teps.or.kr/ (Sample question on 13th, July)

the options and chooses the appropriate answer to the question. The questions of part 4 also have three types – main topic, detail (finding the true statement about the lecture), and inference.

      The total words, words per minute (WPM) and the length of the selected tests in total are shown in Table 3.1. When calculating WPM of each test, the introduction part of the test and the blank time between one question and another question were excluded for more accuracy. That is, only the total time of 60 questions was used in calculating WPM. The length of each test means the total test time which includes the introduction of the test and all the blank time. The characteristics of four different parts of the tests are also described from Table 3.2 to Table 3.5. These tables were calculated the same way as Table 3.1.

Table 3.1

Characteristics of the Original Test (Total)

	Test A	Test B	Test C	Test D
Total words	4605	4471	4372	4443
WPM	152.38	155.4	149.57	154.7
Length	55:16	52:59	53:39	55:16

Note. Length = minutes:seconds.

Table 3.2

Characteristics of Part 1 of the Original Test

	Test A	Test B	Test C	Test D
Total words	562	553	519	511
WPM	144.85	150.68	145.38	146.84
Length	6:39	6:30	6:23	6:39

Note. Length = minutes:seconds.

Table 3.3

Characteristics of Part 2 of the Original Test

	Test A	Test B	Test C	Test D
Total words	780	735	724	713
WPM	149.43	148.48	147.15	153.33
Length	7:27	7:12	7:12	7:27

Note. Length = minutes:seconds.

Table 3.4

Characteristics of Part 3 of the Original Test

	Test A	Test B	Test C	Test D
Total words	1393	1448	1409	1419
WPM	155.64	168.37	163.46	162.73
Length	17:10	16:56	17:13	17:10

Note. Length = minutes:seconds.

Table 3.5

Characteristics of Part 4 of the Original Test

	Test A	Test B	Test C	Test D
Total words	1962	1735	1720	1797
WPM	161.22	150.22	141.80	165.10
Length	24:00	22:21	22:51	24:00

Note. Length = minutes:seconds.

3.2.2 Verifying the Equality of the Tests

As this study used four different TEPS listening tests, it was necessary to

confirm that there was no difference among the four test sets. For confirmation, 10 randomly selected Korean EFL university students participated in verifying the equality of the tests. The participants consisted of 3 male and 7 female students. The proficiency level of the participants also differed. There were 1 low-intermediate student whose TEPS score was about 450 and 2 mid-intermediate students whose TEPS score was between 500 and 600. Another 2 students were high-intermediate with scores between 600 and 700 and 2 students were advanced students with scores around 750. The remaining 3 students were near-native level as they scored higher than 800 in TEPS. The participants solved unedited four sets of listening tests and the result was analyzed using one-way ANOVA.

Table 3.6

Descriptive Statistics of the Score of Selected Tests (Total)

	Test A	Test B	Test C	Test D
Mean	49.10	49.70	49.70	49.20
SD	11.17	10.86	11.76	12.27

Note. The total score of each test is 60.

Table 3.7

Result of One-way ANOVA of the Selected Tests (Total)

	SS	*Df*	*MS*	*F*	*Sig.*
Between groups	3.08	3	1.03	.0077	.999
Within groups	4784.7	36	132.91		
Total	4787.78	39			

The descriptive result is shown in Table 3.6 and the result of one-way ANOVA is shown in Table 3.7. As shown in Table 3.7, there was no difference among the four tests (p=.999). As a result, these four tests were subsequently chosen to be edited with different speech rates and used in the main experiment.

For more detailed comparison, the total scores of the selected tests were divided by the four different parts of TEPS listening test. The scores of each part of the selected tests were analyzed using one-way ANOVA. The results are presented below. The descriptive statistics of part 1 is summarized in Table 3.8. The average score of test D was highest among the four tests. Despite the different average scores, there was no significant difference among the tests as shown in the result of one-way ANOVA in Table 3.9 (p=.801).

Table 3.8

Descriptive Statistics of the Score of Part 1 of the Selected Tests

	Test A	Test B	Test C	Test D
Mean	11.90	11.90	12.30	13.10
SD	3.07	3.07	1.02	0.95

Note. The total score of part 1 is 15.

Table 3.9

Result of One-way ANOVA of Part 1 of the Selected Tests

	SS	*Df*	*MS*	*F*	*Sig.*
Between groups	9.6	3	3.200	.334	.801
Within groups	344.8	36	9.578		
Total	354.4	39			

The descriptive statistics of part 2 is summarized in Table 3.10 and the result of one-way ANOVA is shown in Table 3.11. In part 2, the average scores of the selected tests had little difference and Table 3.11 proved that there was no statistical difference among the tests (p=.997).

Table 3.10

Descriptive Statistics of the Score of Part 2 of the Selected Tests

	Test A	Test B	Test C	Test D
Mean	12.90	12.90	12.70	12.70
SD	2.92	2.85	2.95	2.95

Note. The total score of part 2 is 15.

Table 3.11

Result of One-way ANOVA of Part 2 of the Selected Tests

	SS	*Df*	*MS*	*F*	*Sig.*
Between groups	.40	3	.133	.016	.997
Within groups	306.00	36	8.500		
Total	306.40	39			

Table 3.12 and Table 3.13 show the descriptive statistics of part 3 and the result of one-way ANOVA, respectively. Similar to part 2, the average scores of the selected tests had little difference in part 3. The result of one-way ANOVA also suggested that there was no significant difference among the four selected tests (p=.998).

Table 3.12

Descriptive Statistics of the Score of Part 3 of the Selected Tests

	Test A	Test B	Test C	Test D
Mean	12.60	12.70	12.50	12.70
SD	2.63	2.45	3.14	2.71

Note. The total score of part 3 is 15.

Table 3.13

Result of One-way ANOVA of Part 3 of the Selected Tests

	SS	*Df*	*MS*	*F*	*Sig.*
Between groups	.275	3	.092	.012	.998
Within groups	271.100	36	7.531		
Total	271.375	39			

The descriptive statistics of part 4 is summarized in Table 3.14. It shows that the average score of test B was highest among the four tests. The result of one-way ANOVA of part 4 is summarized in Table 3.15 and it shows that there is no

significant difference among the tests (p=.970).

Table 3.14

Descriptive Statistics of the Score of Part 4 of the Selected Tests

	Test A	Test B	Test C	Test D
Mean	11.70	12.20	11.70	11.60
SD	2.95	2.74	3.43	2.88

Note. The total score of part 4 is 15.

Table 3.15

Result of One-way ANOVA of Part 4 of the Selected Tests

	SS	*Df*	*MS*	*F*	*Sig.*
Between groups	2.2	3	.733	.081	.970
Within groups	326.2	36	9.061		
Total	328.4	39			

3.2.3 Editing the Tests

Four listening tests were chosen as a result of the verifying process

described in 3.2.2. Then, each listening test was edited with different speech rate – 140, 160, 180, and 200 WPM, respectively. Test A had 152.38 WPM and was slowed to 140 WPM, which belongs to moderately slow speech according to Pimsleur, Hancook, and Fiurey (1977). Test B had 155.4 WPM and was fastened to 160 WPM and test C with 149.57 WPM was fastened to 180 WPM, which all belong to average speech rate. Lastly, test D had 154.7 WPM and was fastened to 200 WPM, which belongs to moderately fast speech rate. The four edited listening tests were used to investigate the two research questions of this study. The characteristics of the edited tests are summarized in Table 3.16.

Table 3.16

Characteristics of the Edited Test

	Test A	Test B	Test C	Test D
Original SR (WPM)	152.38	155.4	149.57	154.7
Edited SR (WPM)	140	160	180	200
Length	1:00:03	52:58	46:06	47:16

Note. SR = Speech Rate/ Length =hours: minutes:seconds

All the adjustment was done using the software called GoldWave (Version 6.10). GoldWave is a free sound file editing program which can be

downloaded online. It is one of the most commonly used sound editing programs and it was also frequently used in the previous research. In addition, GoldWave minimizes the pitch changes when converting the speech rate. In reality, when the participants were asked whether they felt the listening test unnatural, all of the participants answered that they did not find anything strange in the sound.

Figure 3.1

Time Warp in GoldWave
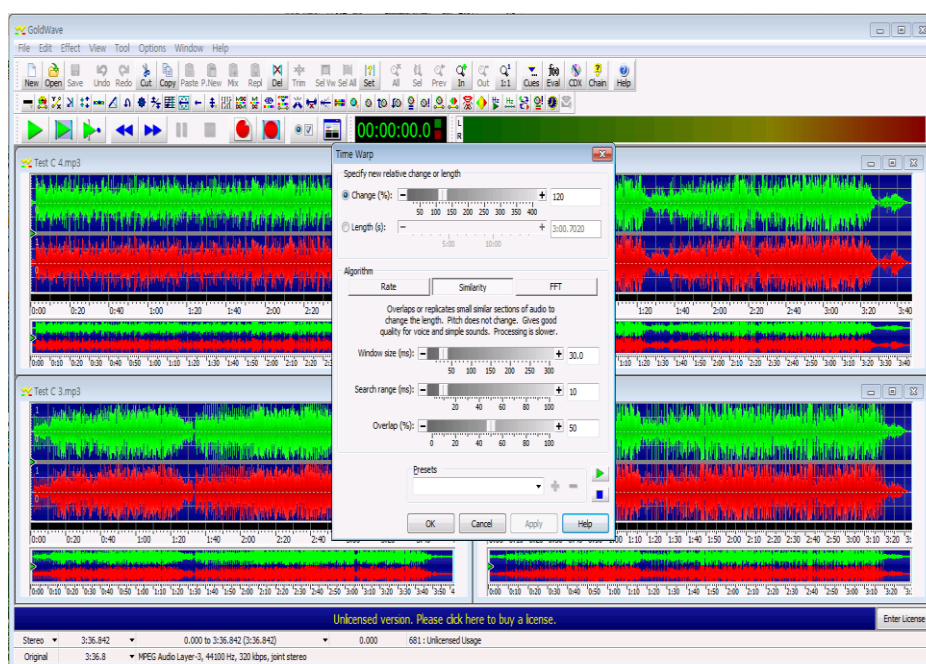
Speech rate can be easily converted using the 'time warp' tap on the top of the program. In the 'time warp' function, there is 'similarity' tab where users

can specifically control the degree of pitch changes. In the present study, the value was set as Figure 3.1 – window size 30 and search range 10.

3.3 Data Collection

For the experiment, the participants needed to take four different listening tests. As each test was about one hour long, only one test was taken per day. That is, the participants came to the designated places in the university for four days. The participants took the test individually or in groups at the pre-determined time. The order of the tests was randomly mixed so each individual or each group took the tests in different order. As TEPS listening tests let the test-takers freely take notes, participants in the present study also had freedom to write anything on the paper. The listening tests were played using the speaker of the computer so that the condition of experiment is similar to that of real TEPS test.

There was no constructed interview prepared for the participants but some participants freely said how they felt about the test after the experiment. This small conversation gave some insights when analyzing the result after all the experiment. It will be discussed in chapter 4.

3.4 Data Analysis

To answer the first research question about investigating the effect of speech rate on students' performance on TEPS listening test in total, one-way ANOVA (Analysis of Variance) was conducted to compare the total scores of each of the tests as the dependent variables are four different tests. Also, in order to exactly see which tests have a significant difference, post hoc analysis was conducted.

For the second research question of investigating the effect of speech rate on each part of TEPS listening test, the total scores were divided into the scores of each part. Again, there are four dependent variables (four different tests) for each part, therefore one-way ANOVA was used for analyzing part 1, part 2, part 3, and part 4. A post hoc analysis was also added to the result of one-way ANOVA.

All the analyses were conducted using the IBM Statistical Package for the Social Sciences (SPSS) version 21. All the data set met the conditions for using the parametric analysis and the alpha level was set at 0.5.

CHAPER 4.

RESULTS AND DISCUSSION

This chapter describes the results of the statistical analysis of the test scores and discusses the findings. Section 4.1 reports the results of the total scores of the four different tests. Section 4.2 discusses the results of the scores of four different parts of the test.

4.1 Effect on Total Scores

To investigate the effect of speech rate on learners' performance on TEPS listening tests, the participants took four listening tests with different speech rates. To analyze the effect of speech rate on listening comprehension, the total scores of four tests were compared with one-way ANOVA.

Table 4.1 summarizes the descriptive statistics of total scores. As the proficiency level of the participants was advanced, the average scores of the tests were relatively high. Among the four tests, the average score of test B with speech rate 160 WPM was highest (53.47) while the average score of test A with the slowest speech rate (140 WPM) was lowest (50.33).

Table 4.1

Descriptive Statistics of Total Scores

	M	*SD*	*95% confidence Interval for mean*	
			Lower Bound	*Upper Bound*
Test A	50.33	2.41	49.43	51.23
Test B	53.47	2.67	52.47	54.47
Test C	52.03	3.25	50.82	53.25
Test D	52.43	3.56	51.10	53.76
Total	52.07	3.18	51.49	52.64

Note. The total score is 60.

Table 4.2

The Effect of Speech Rate on Total Scores (ANOVA)

	SS	*df*	*MS*	*F*	*Sig.*
Between groups	153.00	3	51.00	5.632	.001*
Within groups	1050.47	116	9.06		
Total	1203.47	119			

*p<.05

Table 4.3

Post Hoc Analysis of Total Scores

Test	Test	*Mean Difference*	*Sig.*
Test A	Test B	-3.13*	.002*
Test A	Test C	-1.70	.194
Test A	Test D	-2.10	.068
Test B	Test C	1.43	.338
Test B	Test D	1.03	.623
Test C	Test D	-0.40	.966

*p<.05

As shown in Table 4.2, the total scores have statistically significant difference (p=.001). According to the result of the test of homogeneity of variance, equal variance was assumed (p>.05) so Scheffe was used for the *post hoc* analysis. As shown in Table 4.3, only test A and test B had statistically significant difference. Test B, C, and D had no significant difference, which means that speech rate had no effect on the total scores of the tests with faster speech rate. That is, participants showed no difference in tests with faster speech rate. The interesting fact was that the participants performed worst on the slowest speech rate. It is generally expected that students would do similar or better at

understanding the materials with slow speech rate but the same was not true in this study. According to the participants' small conversation about the test after taking it, many of them said that slow speech rate interfered with their concentration as the test took longer time. In fact, the slowest test was from 7 to 13 minutes longer than other tests. Therefore, the lower concentration can be one reason that participants did worst on slowest speech rate test (test A).

4.2 Effect on Each Part of the Test

For the second research question, the scores of each part were compared using one-way ANOVA. As stated in chapter 3, TEPS listening test has four different parts. Part 1 is finding an appropriate response to a spoken statement. Part 2 is finding an appropriate response to the three spoken statement. Part 3 is answering questions after listening to a short conversation and part 4 is answering questions after listening to a short lecture. As explained, each part has different characteristics and the effect of speech rate can be also different with each part. To investigate the effect of speech rate on each part, the scores of each part were calculated and compared using one-way ANOVA. The description of the results is followed.

4.2.1 Result of Part 1 and Discussion

Part 1 is finding a response after listening to a single spoken statement. The descriptive statistics of part 1 is summarized in Table 4.4. Contrary to the expectation, the average score of test D with the fastest speech rate was the highest in part 1.

Table 4.4

Descriptive Statistics of Part 1

	M	*SD*	*95% confidence Interval for mean*	
			Lower Bound	*Upper Bound*
Test A	12.97	1.30	12.48	13.45
Test B	12.00	1.55	11.42	12.58
Test C	12.87	1.28	12.39	13.34
Test D	13.40	1.16	12.97	13.83
Total	12.80	1.41	12.55	13.06

Table 4.5

The Effect of Speech Rate on Part 1 (ANOVA)

	SS	*Df*	*MS*	*F*	*Sig.*
Between groups	30.96	3	10.32	5.821	.001*
Within groups	205.63	116	1.77		
Total	236.59	119			

*p<.05

Table 4.6

Post Hoc Analysis of Part 1

Test	**Test**	*Mean Difference*	*Sig.*
Test A	Test B	0.97	.053
Test A	Test C	0.10	.994
Test A	Test D	-4.33	.663
Test B	Test C	-0.87	.102
Test B	Test D	-1.40*	.001*
Test C	Test D	-0.53	.495

*p<.05

The result of one-way ANOVA in Table 4.5 indicates that there was a significant difference among the tests. As equal variance was assumed (p>.05) as a result of the test of homogeneity of variances, Scheffe was used for the *post hoc* analysis. As shown in Table 4.6, there was a significant difference between test B and test D, meaning that the score of test D was significantly higher than that of test B. Even though the speech rate of test D was the fastest (200 WPM), belonging to moderately fast speech rate of native speakers, the average score was highest among the tests.

One possibility for the highest scores of test D is that the difficulty of part 1 of test D might be easier than the other tests. Although the difficulty of tests in total and each part was the same as shown in Section 3.2.2, there was small difference in the average scores of part 1. As the participants were advanced learners, slight difference in score might have influenced on their performance on the test.

4.2.2 Result of Part 2 and Discussion

Part 2 is finding a response after listening to a conversation composed of three spoken statement. The descriptive statistics of the scores of part 2 is shown in Table 4.7. Even though the average score of test B was highest, there was only slight difference among the tests. As the proficiency level of the participants was

advanced, the difference was even smaller.

Table 4.7

Descriptive Statistics of Part 2

	M	*SD*	*95% confidence Interval for mean*	
			Lower Bound	*Upper Bound*
Test A	13.40	1.13	12.98	13.82
Test B	13.93	1.20	13.48	14.38
Test C	13.33	1.06	12.94	13.73
Test D	13.87	1.04	13.48	14.26
Total	13.63	1.13	13.43	13.84

Table 4.8

The Effect of Speech Rate on Part 2 (ANOVA)

	SS	*Df*	*MS*	*F*	*Sig.*
Between groups	8.67	3	2.89	2.340	.077
Within groups	143.20	116	1.23		
Total	151.87	119			

The result of one-way ANOVA shown in Table 4.8 proved that there was no significant difference among the tests ($p>.05$). Compared to part 1 with only one spoken statement, part 2 has more contextual information that learners can use when selecting the correct answer. That is, even if the learners missed some words or information, they can guess from the context and choose the correct answer. It seems the reason why the scores of part 2 showed no effect of speech rate on listening comprehension.

4.2.3 Result of Part 3 and Discussion

Part 3 is answering questions after listening to a short conversation. Table 4.9 summarizes the descriptive statistics of the scores of part 3. Considering the proficiency level of the participants, they all performed well on all the tests except for test A. In part 3, the average score of test A with slowest speech rate (140 WPM) was the lowest. The result of one-way ANOVA in Table 4.10 indicated that there was a significant difference among the tests ($p<.001$) but the difference came from the comparison of test A and other tests. Table 4.11 of the *post hoc* analysis (In part 3, the equal variance was not assumed ($p<.05$) so Dunnett T3 was used in *post hoc* analysis) confirmed that the average score of

part 3 in test A was significantly different from all the other tests.

Table 4.9

Descriptive Statistics of Part 3

	M	*SD*	*95% confidence Interval for mean*	
			Lower Bound	*Upper Bound*
Test A	12.87	1.81	12.19	13.54
Test B	14.27	0.78	13.97	14.56
Test C	14.53	0.68	14.28	14.79
Test D	14.03	1.10	13.62	14.44
Total	13.93	1.33	13.68	14.17

Table 4.10

The Effect of Speech Rate on Part 3 (ANOVA)

	SS	*Df*	*MS*	*F*	*Sig.*
Between groups	48.56	3	16.19	11.607	.000*
Within groups	161.77	116	1.40		
Total	210.33	119			

p<.05

Table 4.11

Post Hoc Analysis of Part 3

Test	Test	*Mean Difference*	*Sig.*
Test A	Test B	-1.40*	.002*
Test A	Test C	-1.67*	.000*
Test A	Test D	-1.17*	.024*
Test B	Test C	-0.27	.651
Test B	Test D	0.23	.917
Test C	Test D	0.50	.208

*p<.05

This result resembles the result of the total scores and the lowered concentration on the test with slower speech rate seems to be the reason of the difference. Especially, as the participants of the present study had advanced proficiency level, they could have understood most of the text at the first time of listening. According to a small conversation of the participants after the test, many of them reported that they became bored and could not concentrate on the test with slow speech rate. In addition, as it is the third part of the test, the

concentration level may start decreasing due to fatigue. It is notable that the score of test A showed no difference with test B and C in part 1 and 2. However, in part 3, there was a significant difference between test A and the others. It seems that the participants might have started feeling exhausted from part 3 and become tired of listening to the text twice regardless of their understanding.

However, there was no difference among the test B, C, and D. That is, the speech rate had no effect on the learners' performance with faster speech rate in part 3. Similar to part 2, part 3 is composed of a short conversation, even longer than part 2. Again, there are a lot of contextual cues that learners can use while listening so they can better understand the conversation. In addition, the conversation and the question are presented twice in part 3. The learners can focus more on the conversation according to the question and can find more information related to it. In other words, the contextual cues and the opportunity of listening twice may have helped the learners' comprehension even if the speech rate became faster. Despite the fast speech rate, learners could understand the conversation using other devices.

4.2.4 Result of Part 4 and Discussion

Part 4 is answering questions after listening to a short lecture. Table 4.12

shows the descriptive statistics of part 4. In part 4, the average score of test B was higher than all the other tests, while there seemed no difference among the test A, C, and D. The result of one-way ANOVA in Table 4.13 proved that there was significant difference among the tests. In part 4, the equal variance was not assumed (p<.05) and Dunnett T3 was selected for *post hoc* analysis. The result of *post hoc* analysis is summarized in Table 4.14, and there was a statistically significant difference between test B and test A, C, and D, respectively, while the tests except for test B showed no difference. That is, the learners' performance differed according to the speech rate. They did worse in slowest and fast speech rate.

Table 4.12

Descriptive Statistics of Part 4

	M	*SD*	*Lower Bound*	*Upper Bound*
			95% confidence Interval for mean	
Test A	11.40	0.81	11.10	11.70
Test B	13.30	0.91	12.96	13.64
Test C	11.60	1.92	10.88	12.32
Test D	11.70	1.49	11.14	12.26
Total	12.00	1.54	11.72	12.28

Table 4.13

The Effect of Speech Rate on Part 4 (ANOVA)

	SS	df	MS	F	Sig.
Between groups	69.00	3	23.00	12.409	.000*
Within groups	215.00	116	1.85		
Total	284.00	119			

p<.05

Table 4.14

Post Hoc Analysis of Part 4

Test	Test	Mean Difference	Sig.
Test A	Test B	-1.90*	.000*
Test A	Test C	-0.20	.995
Test A	Test D	-0.20	.908
Test B	Test C	1.70*	.000*
Test B	Test D	1.60*	.000*
Test C	Test D	-0.10*	.000*

p<.05

The result of part 4 was unique and did not resemble the result of other parts. The learners performed best on the test with 160 WPM. The result that the participants did worse on the slowest listening test seems to be the same as the part 3. Since the proficiency level of the participants was relatively high, they felt bored and could not concentrate well on the slow test. In addition, because part 4 is the last part and the most difficult part, the average score of part 4 was lower than the other parts. The effect of speech rate would be greater in slow speech rate as the participants had already felt fatigue in taking the test. It might also have influenced the concentration level of participants.

In part 4, the participants did worse on the tests with faster speech rate. The result of other parts showed that the test with 180 WPM had no significant difference with the test with 160 WPM but there was a difference between the two speech rate in part 4. A difference between part 4 and the others is whether the form of listening text is lecture or conversation. While part 1, 2, and 3 are listening to conversation, part 4 is answering questions after listening to a lecture. Ostler (1980) found that the participants were better at everyday conversation than listening and speaking in classes. Mason (1995) stated that even students with high TOEFL scores were not proficient for academic listening. The fact that the learners found listening to lecture more difficult than listening to conversation can be explained by different characteristics and different standard

of speech rate between conversation and lecture.

There are many differences between listening to a lecture and conversation. Richards (1983) was the first to suggest that different skills would be required for conversational listening and academic listening. Flowerdew (1994) claimed that lecture comprehension has its own distinctive features compared to those of conversation. The type of background knowledge, ability to identify what is relevant and what is not, application of the turn-taking conventions, ability to concentrate on and understand long stretches of talk, note-taking and ability to integrate the incoming message with information from other media are features related to listening and understanding lecture. Flowerdew (1994) also concluded that an unfamiliar discourse structure, the role of discourse markers, the role of note-keeping, listening comprehension strategies affected academic listening comprehension process. In addition, the type and frequency of vocabulary and information load of conversation and lecture are also among the affecting factors.

Even the listening test of CSAT which all Korean students are familiar with is composed of more conversational questions than monologue or lecture listening. There are a total of 17 questions in CSAT English listening test, but only 4 questions are monologue. Therefore, it is natural for Korean students to feel more familiar with conversation listening and may have difficulty listening to lectures. It can be also one of the factors affecting listening to different types

of texts.

In addition to the different skills required in understanding conversation and lecture, the standard speech rate is also a factor which differentiates conversation from lecture. According to the standard speech rate suggested by Tauroza and Allison (1990), speech rate from 160 to 190 WPM is moderately slow and speech rate from 190 to 230 WPM is average in conversation. Compared to conversation, speech rate from 125 to 160 WPM is average speech rate and speech rate from 160 to 185 WPM is moderately fast in lecture. Tauroza and Allison (1990) also suggested that speech rate above 185 WPM is faster than normal speech rate. Therefore, 180 and 200 WPM was very fast speech rate in listening to lecture and the learners had difficulty managing it.

In short, listening to conversation and listening to lecture are different in many aspects. They require different skills in listening. The characteristics and standard speech rate of listening to conversation and lecture are also different. These distinctive factors of listening to lecture caused learners to have more difficulty understanding the lecture and as a result, the effect of speech rate was clearly observed in part 4, answering questions after listening to a short lecture.

As summarized in 2.2.2, the research of the effect of speech rate on Korean EFL learners' performance on CSAT English listening test has concluded that the speech rate had little effect on learners' performance up to a certain point. Park (2014) found that Korean high school students showed no

difference in comprehension until the speech rate about 173 WPM, but they performed worse in tests with 190 WPM. Similar to the research in Korean context, the present study found that the speech rate had little effect on the Korean advanced learners' performance with faster speech rate on TEPS listening test except listening to lecture while slow speech rate showed some effect in part 3 and 4.

CHAPTER 5.

CONCLUSION

This chapter is composed of three sections. Section 5.1 summarizes the major findings of the present study. In Section 5.2, the implications on English listening education and tests are presented. Finally, Section 5.3 reports the limitations of the present study and makes suggestions for the further research.

5.1 Major Findings

This study investigated the effect of speech rate on learners' performance on TEPS listening test. The first research question looked into the effect of speech rate on the total scores of TEPS listening test. The scores of each part were compared for the second research question. The major findings are summarized below.

The total score of TEPS listening test showed a significant difference among the tests. Although there was no difference among the tests with faster speech rate, the score of the slowest test was lowest. This result indicates that the tests and materials with slower speech rate are not always helpful for the students. As the participants of this study were all advanced students, it is true especially

for the students with high proficiency level.

The scores of each part also showed a difference among the tests except for part 2. In part 1, there was a significant difference among the tests and the test with the fastest speech rate showed the highest score. Generally, it is expected that faster speech rate hinders listening comprehension, but the fastest test had the highest score in part 1. The reason might be that the difficulty of the part 1 of the fastest test was easier than the other tests as the average score of part 1 of the fastest test was higher than others. Part 2 showed no difference among the tests. Part 2 has more contextual information than part 1 so it might help the learners' comprehension. The learners performed worst in the slowest test in part 3 while the other tests showed no difference. This result is similar to the result of the total score. As the participants of this study were advanced learners, they might have had difficulty concentrating on the slower test. In part 3, the text and question are presented two times so it might have helped learners' understanding in faster speech rate.

Finally, part 4 had different results compared to the other parts. There was a significant difference among the tests, but the test with 160 WPM had higher score than all the other tests. That is, in part 4 which is answering questions after listening to a lecture, the speech rate had a significant effect on the learners' comprehension. With slowest test, the concentration problem seems to have affected learners' performance. In addition, the learners performed worse

in faster tests. This is because of the different characteristics between listening to conversation and lecture. In addition to the different skills required in understanding conversation and lecture, the standard speech rate for each field is also different. In lecture, 125 to 160 WPM is an average speech rate and 160 to 185 WPM is moderately fast according to Tauroza and Allison (1990). They also suggested that speech rate above 185 WPM is faster than normal speech rate. Therefore, 180 and 200 WPM was very fast speech rate in listening to lecture and the learners had difficulty managing it.

Overall, the result of the present study indicated that the speech rate had little effect on the learners' performance on TEPS listening test with faster speech rate except part 4 which is answering questions after listening to the lecture. However, the slow speech rate had an effect on their performance in part 3 and 4.

5.2 Implications

Based on the major findings described in 5.1, this study presents the following pedagogical implications on L2 listening education and tests.

1) First, the speech rate had little effect on the learners' performance on TEPS listening test. As the speech rate of the TEPS listening test and

listening practice books ranges from moderately slow to average, it needs to be faster than it is now to help learners to understand and communicate better in real communication situation. In reality, the speech rate of native speakers is faster than the listening materials used in studying TEPS and other tests so it is recommended that the speech rate should be made faster to make learners more familiar with the faster speech rate.

2) Second, the learners showed worse performance in the slowest speech rate in part 3 and 4. Although it is one of the limitations of this study that the participants of the present study were all advanced learners, they performed worse on the slowest test. It means that slow speech rate is not helpful for the advanced learners. As the effect of slow speech rate on beginners and intermediate learners is not clear, at least the difficult test items or the practice books for the advanced learners should apply faster speech rate to the listening questions.

3) Third, only part 4, answering questions after listening to a lecture, showed the effect of the different speech rate in faster tests. It means that learners are affected by the different types of speech. Therefore,

the speech rate should be different according to the type of speech. While fast speech rate is used for listening to conversation, average speech rate should be used for listening to lecture. Type of speech needs to be considered in adjusting speech rate in TEPS listening test. It should be different in conversation and lecture.

5.3 Limitations and Suggestions

This study has some limitations despite the fact that each experiment step was meticulously designed and the variables were carefully controlled.

Firstly, the participants of the present study were all advanced. The TEPS scores of the participants were all higher than 700, which is advanced or near-native level of communicative competence. It had an effect on the result, especially the result of the test with the slowest speech rate where the participants reported the lack of concentration and performed worse than other tests. In addition, all the participants were the students of a university situated in Seoul. Therefore, it requires caution to make generalization of the findings. The studies including intermediate and beginner learners from diverse region might be needed in future.

Secondly, the result of part 1 that the average score of the fastest speech rate test was the highest was exceptional. No parts showed the best result in the

test with fastest speech rate. As mentioned before, the average score of part 1 in test D was higher than the other parts although the result of one-way ANOVA showed that the difficulty of part 1 was the same among the four tests. For more sophisticated research, the future studies need to be more careful in comparing the difficulty of each part and make sure that there is no difference among the tests not only in the total scores but also in the scores of each part.

Thirdly, this study lacks a constructed interview with participants. Some of the results were different with general expectations in English listening, but there was no way to find the exact reason for this discrepancy. The reason was deduced from the small conversation with the participants, which took place shortly after taking the test. Therefore, the discussion of this study has limitations. It is recommended to have interviews with the participants in future studies to figure out more reliable conclusion.

Lastly, the present study was the first study to see the effect of speech rate on the TEPS listening test. There has been a substantial amount of research done in Korea with CSAT for high school students or other listening materials for middle school students but no research on TEPS listening test was conducted before. Therefore, more research of TEPS and more research with university students need to be conducted in the future.

REFERENCES

Bachman, L. F. (1990). *Fundamental considerations in language testing*. Oxford: Oxford University Press.

Bachman, L. F., & Palmer, A. (1996). *Language testing in practice*. Oxford: Oxford University Press.

Blau, E. K. (1990). The effect of syntax, speed and pauses on listening comprehension. *TESOL Quarterly, 24(*4), 746-753.

Boyle, J. (1984). Factors affecting listening comprehension. *ELT Journal, 38*(1), 34-38.

Brown, D. (2007). *Teaching by principles: an interactive approach to language pedagogy*. London: Longman.

Buck, G. (2001). *Assessing Listening*. Cambridge: Cambridge University Press.

Cha, K. W. (2000). A study of impediments in listening to English news broadcasts. *English Teaching, 55*(1), 201-225.

Chiang, C. S., & Dunkel, P. (1992). The effect of speech modification, prior knowledge, and listening proficiency on EFL lecture learning. *TESOL Quarterly, 26*(2). 345-369.

Choi, S. K. (2009). *Effects of the speech rate on English listening comprehension of the third grade middle school students*. Unpublished master's

thesis, Dong-A University, Busan.

Cucchiarini, C., Strik, H., & Boves, L. (2000). Quantitative assessment of second language learners' fluency by means of automatic speech recognition technology. *Acoustical Society of America, 107*(2), 989-999.

Flaherty, E. (1979). Rate-controlled speech in foreign language education. *CAL-ERIC/CLL Series on Languages and Linguistics, 61*, 275-280.

Flowerdew, J. (Ed.). (1994). *Academic listening: Research perspectives*. Cambridge: Cambridge University Press.

Griffiths, R. (1990a). Facilitating listening comprehension through rate-control. *RELC Journal, 21*(1), 55-65.

Griffiths, R. (1990b). Speech rate and NNS comprehension: A preliminary study in time-benefit analysis. *Language Learning, 40*(3), 311-336.

Griffiths, R. (1991). Language classroom speech rates: A descriptive study. *TESOL Quarterly, 25*(1), 189-194.

Griffiths, R. (1992). Speech rate and listening comprehension: Further evidence of the relationship. *TESOL Quarterly*, *26*(2), 385-390.

Hayati, A. (2010). The effect of speech rate on listening comprehension of EFL learners. *Creative Education, 2*, 107-114.

Heo, J., & Yoon, S. W. (2003). The effect that speech rate has on English listening comprehension of Korean high school students. *Studies in Modern Grammar, 33*, 217-235.

Jensen, E. D., & Vinther, T. (2003). Exact repetition as input enhancement in second language acquisition. *Language Learning*, *53*(3), 372-428.

Johns, A. M. (1981). Necessary English: A faculty survey. *TESOL Quarterly, 15*, 51-57.

Kelch, K. (1985). Modified input as an aid to comprehension. *Studies in Second Language Acquisition, 7*, 81-89.

Kim, J. Y. (2008). *A study on listening test in Korean scholastic aptitude test.* Unpublished master's thesis, Sungkyunkwan University, Seoul.

Lee, B. E. (1998). *The influence of the speech rate on the English listening comprehension of university freshmen*. Unpublished master's thesis, Hanyang University, Seoul.

Lee, S. Y. (2004). *A study on speech rate of Korean scholastic aptitude test for college admission.* Unpublished master's thesis, Korea National University of Education, Chungbuk.

Mason, A. (1995). By dint of: Student and lecturer perceptions of lecture comprehension strategies in first-term graduate study. In J. Flowerdew (ed.), *Academic listening: Research perspectives* (pp. 199-218). Cambridge: Cambridge University Press.

McBride, K. (2011). The effect of rate of speech and distributed practice on the development of listening comprehension. *Computer Assisted Language Learning, 24*(2), 131-154.

Nunan. D. (2003). *Practical English Language Teaching*. New York, NY: McCraw-Hill.

Oh, H. J. (2014). *English listening barrier factors perceived by Korean high school students*. Unpublished master's thesis, Seoul National University, Seoul.

Ostler, S. E. (1980). A survey of academic needs for advanced ESL. *TESOL Quarterly, 14*, 489-502

Park, S. M. (2014). *The effect of different speech rates on Korean high school students' listening comprehension in the college scholastic ability test.* Unpublished master's thesis, Chungang University, Seoul.

Pimsleur, P., Hancock, C., & Furey, P. (1977). Speech rate and listening comprehension. In M. Burt, H. Dulary, & M. Finocchiaro (Eds.), *Viewpoints on English as a second language*. New York: Regents.

Richard, J. C. (1983). Listening comprehension: Approach, design, procedure. *TESOL Quarterly, 17*(2), 219-240.

Rivers, M. W. (1981). *Teaching foreign language skills*. Chicago and London: The University of Chicago Press.

Rost, M. (1991). *Listening in action: Activities for developing listening in language teaching*. Englewood Cliffs, NJ: Prentice Hall.

Rubin, J. (1994). A review of second language listening comprehension research. The Modern Language Journal, 78, 199-221.

Seo, E. J. (2010). *A study on the effect of speech rate on the listening portion of the Korean scholastic aptitude test*. Unpublished master's thesis, Yonsei University, Seoul.

Shin, H. M. (2002). *The effect of the speech rates on the improvement of listening comprehension ability.* Unpublished master's thesis, Kook-Min University, Seoul.

Smith, P. D. (1980). A study of the effect of slowed speech on listening comprehension of speech. *NALLD Journal, 6*(1), 9-13.

Strik, H., Cucchiarini, C., & Binnenpoorte, D. (2000). L2 pronunciation quality in read and spontaneous speech. *ICSLP-2000*, 3, 582-585.

Tauroza, S. & Allison, D. (1990). Speech rates in British English. *Applied Linguistics, 11*(1), 90-105.

Towell, R., Hawkins, R., & Bazergui, N. (1996). The development of fluency in advanced learners of French. *Applied Linguistics, 17*(1), 84-119.

Underwood, M. (1997). *Teaching Listening*. New York: Longman.

Ur, P. (1984). *Teaching listening comprehension*. Cambridge: Cambridge University Press.

Yim, B. K. (2004). *An analysis of the listening comprehension items in the scholastic ability English test*. Unpublished master's thesis, Kyunghee University, Seoul.

Yu, J. H. (2012). *The effects of speech rate on high school students'*

improvement of English listening ability. Unpublished master's

thesis, Korea National University of Education, Chungbuk.

Zhao, Y. (1997). The effects of listener's control of speech rate on second

language comprehension. *Applied Linguistics, 18*(1), 49-68.

국문초록

　　본 연구는 발화 속도가 한국인 영어학습자의 텝스(TEPS) 듣기 평가 수행에 미치는 영향에 대한 연구이다. 의사소통능력을 향상시키는 것이 영어 교육의 중요한 목적 중 하나인 상황에서 의사소통에 기본이 되는 능력이 듣기와 말하기인데, 이 중 듣기 능력이 더 중요하다는 연구들이 있다. 듣기에 영향을 미치는 요소들은 여러 가지가 있는데 그 중 발화 속도의 중요성이 강조가 되었고 본 연구에서도 발화속도를 중점으로 연구를 진행하였다.

　　본 연구를 위해서 영어 능숙도가 높은 30명의 한국 대학생들이 각각 다른 발화 속도를 가진 텝스 듣기 평가를 치렀다. 각 시험의 발화 속도는 140, 160, 180, 200 WPM(words per minute)이었는데 Pimsleur 등의 1977년 연구에 따르면 140 WPM은 적당히 느린 속도, 160과 180 WPM은 평균 속도, 그리고 200 WPM은 적당히 빠른 속도에 속하는 발화 속도이다. 각 시험의 발화 속도를 조절할 때는 골드웨이브(GoldWave)라는 프로그램을 사용하여 속도를 조절하였고 참여자들은 하루에 한 회씩 시험을 보았다. 결과는 일원분산분석을 사용하여 비교, 분석하였다.

　　전체 점수의 경우 시험 간 점수의 유의미한 차이가 있었고 발화 속도가 가장 느린 시험의 점수가 가장 낮았다. 느린 속도가 특히 상위 학습자에게 도움이 되는 것은 아니라는 것을 보여주는 것이다. 텝스 시험은 총 네 개의 파트로 구성되어 있기 때문에 각 파트 별 결과도 분석해 보았다. 우선, 각 파트의 문제 유형에 대해서 설명하자면, 첫 번째 파트는 한 문장을 듣고 그에 적절한 반응을 고르는 유형이고 두 번째 파트는 세 개의 발화로 이루어진 짧은 대화를 듣고 마지막 사람의 말에 알맞은 대답을 고르는 유형이다. 세 번째 파트는 대화를 듣고 이어지는 질문에 대답하는 유

형이며 네 번째 파트는 한 사람이 말하는 것을 듣고 이어지는 질문에 대답하는 유형이다. 각 파트의 결과를 분석해 보았을 때, 두 번째 파트를 제외하고 나머지 파트는 점수의 차이가 있었다. 첫 번째 파트의 경우 예상과 달리 가장 빠른 발화 속도를 가진 시험의 점수가 가장 높았는데, 그 시험의 첫 번째 파트의 난이도가 다른 시험에 비해 낮았기 때문이라고 이유를 추측하였다. 두 번째 파트는 시험 간 점수 차이가 없었고 세 번째 파트는 전체 점수와 비슷하게 가장 느린 발화 속도의 시험이 가장 낮은 점수를 보였다. 마지막 파트에서는 160 WPM의 발화 속도를 가진 시험의 점수가 다른 시험보다 유의미하게 높았다. 즉, 강의를 듣고 질문에 답하는 네 번째 파트의 경우에는 발화 속도가 학습자들의 듣기 이해에 영향을 미쳤다는 것을 알 수 있었다. 이는 대화와 강의를 듣는 것의 특성이 다르고 발화 속도 기준이 다르기 때문으로 학습자들이 강의를 듣고 문제를 푸는 유형에서 어려움을 느낀 것으로 해석하였다. 전체적으로 본 연구의 결과는 빠른 발화속도가 네 번째 파트를 제외하고 학습자들의 텝스 듣기 평가 수행에 큰 영향을 미치지 못했다는 것을 보여주고 있다. 그리고 세 번째 파트와 네 번째 파트의 경우, 느린 발화 속도가 학습자들의 듣기 평가 수행에 부정적인 영향을 미쳤기 때문에 특히 상위 학습자에게 느린 발화 속도가 도움이 되지는 않는다는 것을 추가적으로 알 수 있었다.

주요어: 발화 속도, 듣기 평가, 텝스, 한국 대학생