

Factors Predicting EFL Learners' Listening and Reading Fluency

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Abstract

In this study, factors contributing to listening and reading fluency were identified by examining learners' attitude toward English, the content of the English lessons they have had at each stage of their schooling, and their exposure to English in their daily lives. A questionnaire was administered to 247 university students whose first language (L1) was other than English and who have learnt English in different educational systems. Through a series of exploratory factor analyses and multiple regression analyses, several significant variables were extracted. Among them, opportunity to use English as a means of communication was the most significant factor for listening and reading fluency, which provide important pedagogical implications for English education.

Introduction

Two realistic goals related to comprehension skills for EFL learners are to be able to read reasonably fast with sufficient comprehension and to understand spoken messages delivered at a natural speed. Reading fluency is important in particular for university learners as they have to read English academic papers in their majors within a limited amount of time and obtain necessary information through the Internet. Listening fluency is also important and it is a prerequisite for comprehending incoming spoken information at the pace it is delivered since learners cannot control that pace in most of cases. Besides this unique aspect of listening, it has been claimed that listening plays an important role in gaining reading fluency because of the similarities found between listening and reading processes - particularly at the word recognition level (e.g., De Bot, Paribakht, & Wesche, 1997; Hirai, 1999; Sticht & James, 1984). L1 readers can improve their reading skills rapidly by associating written words with the appropriate sounds. In other words, they access their mental lexicon for the meaning of the written word they would already recognize if they heard it. Sticht and James (1984) stated that for most young L1 readers, "in learning to read, the person learns to turn the written representation of language into the same internal vocabulary and syntax as is used for speech and the latter is then used to construct meaning or thoughts" (p. 298).

Fluency and Automaticity in Listening and Reading

One of the most striking differences between L1 and L2 learners of English is their fluency. A review of word recognition research suggests that word recognition speed is extremely important for fluent reading because it has been consistently shown that the ability to recognize words rapidly and accurately accounts for a good share of variance not only in young readers, but also in proficient college readers (Adams, 1990; Cunningham,

Stanovich, & Wilson, 1990; Gough & Tunmer, 1986; Perfetti, 1985; Stanovich, 1986). Words in sentences must first be recognized, that is, lexically accessed, so their meaning in the context of a sentence can be used to formulate the complete thought which the author intended to communicate. Therefore, the speed at which words can be recognized has the potential to limit the rate at which all subsequent processes operate (Carver, 1990).

Shiffrin and Schneider (1977) claimed that the way in which we process information may be either controlled or automatic, and that learning involves a shift from 'controlled' towards 'automatic' processing. The term 'automatization,' was defined as "the ability to get things right when no attention is available for getting them right" (Johnson, 1996, p. 137). Because the attentional demands created by decoding and comprehension exceed their attentional capacity, beginning readers focus their attention first on the decoding task and then switch their attention to comprehension in order to understand what they have decoded. With repeated practice, a task that formerly required attention for its performance can be performed without attention, that is, the task can be done automatically. If two tasks can be performed simultaneously, at least one of them is being done automatically. Thus, when decoding takes place automatically, more attention is available for extracting meaning from the printed words. This process results in an increase of reading speed, that is, an increase in reading fluency (Samuels, 1994).

Research Questions

All Japanese university students have had similar experiences studying English at school under the Japanese education system. Even so, some students have gained listening and reading fluency, while others cannot comprehend speech even at a slow speed. A wider variance in listening and reading fluency can be expected among EFL learners who have been educated in different educational systems. What educational experiences, then, make their present listening and reading fluency different? Up to now, there has been no such extensive research which investigates what type of English instruction at what learning stage is crucial to later fluency development.

Thus, in this study, to identify factors significantly predicting listening and reading fluency, EFL learners with a wide variety of educational backgrounds and learning experiences were examined. First, their listening and reading fluency were measured by taking both speed and accuracy of passage comprehension into consideration. Next, a questionnaire asking about learner's language experiences was administered and the questionnaire data was analyzed using a principal component analysis (PCA) in order to group similar questionnaire items into the same factors. Lastly, these factors were used as independent variables (IVs) in a multiple regression analysis to predict listening and reading fluency separately.

Method

Participants

247 EFL students (119 males and 128 females) of varying L1s and proficiency levels

studying at a university in Japan participated in this study. They majored in a variety of fields including Economics, Business Administration, Physical Education, International Relations, Humanities, Biological Sciences, and Engineering Systems.

Table 1. *Participants' First Languages*

	L1 (<i>n</i>)
Japanese (169), Chinese (36), Korean (9), Slovene (5), Spanish (2), Persian (2), Hungarian (2), Thai (2), Indonesian (1), Bangladesh (1), Holland (1), Lithuanian (1), Portuguese (1), Romanian (1), Russian (1), Singhalese (1), Vietnamese (1),	
Total	N = 247

The Japanese participants were drawn from six classes of undergraduate general English courses, whereas the non-Japanese EFL students were either in undergraduate, research, or graduate programs at the university. Learners who were from countries where English was an official language were eliminated from Table 1 because they had had extensive exposure to English since childhood and, thus, were detected as outliers in the analysis of the questionnaire data.

Materials for measuring fluency

The participants' listening and reading fluency were expressed as listening efficiency (LE) and reading efficiency (RE). To measure LE and RE, first, seven approximately 200-Word¹ (see Note 1 for using the upper case "W") passages² (A to G) were prepared. All of the passages were easy - ranging from grade level 2 to 4 as measured by the Flesch-Kincaid readability formula. For each passage, a set of eight four-option multiple-choice (MC) questions³ were developed to test the participants' comprehension (see Appendix A and B for a sample passage and the questions).

The order in which the seven passages were delivered to the participants was counterbalanced through the use of two forms of the test as indicated in Table 2 in order to reduce effects due to differences in individual topic familiarity. Next, once the order for the passages had been set, the speed of the taped passages was modified with a speech compressor (*Super Listening System 4GX-SS36*) at the rates of 90, 125, 160, 195, and 230 Wpm so that the passages were presented with five different rates. In the counterbalanced design, 125 participants followed the order indicated in Form 1 and the remaining 122 participants followed the order indicated in Form 2.

Table 2. Counterbalanced Design in Passage Distribution Order and Rates of Delivery

Form	Listening Passage	Reading Passage
Form 1	D (Date) – 90 Wpm	E (Class)
88 Japanese and 37 International (Total: $n = 125$)	C (Vacation) – 125 Wpm A (Movie) – 160 Wpm B (Family) – 195 Wpm F (Health) – 230 Wpm	G (Phone)
Form 2	A (Movie) – 90 Wpm	F (Health)
81 Japanese and 41 International (Total: $n = 122$)	D (Date) – 125 Wpm B (Family) – 160 Wpm G (Phone) – 195 Wpm E (Class) – 230 Wpm	C (Vacation)

Procedure

The students using Form 1 listened to passage D at 90 Wpm twice, and then heard eight comprehension questions once. While listening to the eight comprehension questions, the students selected one of the four choices on the answer sheet. When the students finished passage D, they repeated the same procedure with passages C at 125 Wpm, A at 160 Wpm, B at 195 Wpm, and F at 230 Wpm, in that order. The other 122 participants started with passage A at the rate of 90 Wpm and proceeded through passages D, B, G, and E at gradually increasing speeds. The participants were not permitted to take notes.

In order to measure RE, half of the participants who completed Form 1 read passages E and G, while the other half read passages F and C (see Table 2). Participants were told to read at their maximum rates but not to reread the passages. When they finished reading, they raised their hands. Using a stopwatch, the researcher immediately told the students how long they had taken to finish reading. The participants noted their time and turned over the paper and answered 8 MC questions about the passage. After everybody finished the first passage, the same procedure described above was repeated for the second passage.

Measuring Listening and Reading Fluency. In general, the participants' comprehension of each prose passage dropped as the rate of the speech increased. Participants' listening efficiency rates (LEs) were calculated by multiplying the fastest rate (R) at which sufficient accuracy of comprehension was obtained, and the sufficient accuracy (A) of comprehension (i.e., $LE = R \times A$). In this study, answering at least six out of eight multiple choice (MC) questions correctly for one of the five listening passages (i.e., obtaining at least 75% accuracy of comprehension) was regarded as sufficient (see Carver, 1990 and Hirai, 1999 for more details). For example, if a student listened to the passages at the rates of 90, 125, 160, 195, and 230 Wpm and scored 8, 7, 7, 5, and 2 respectively, then 160 Wpm was used to calculate her LE because she correctly answered six or more

of the MC questions at 160 Wpm, but fewer than six questions at 195 Wpm. Thus, her LE would be 112 Wpm by multiplying the rate 160 Wpm and the accuracy of comprehension at that rate (i.e., $160 \text{ Wpm} \times 7/8$). For participants who were unable to obtain sufficient comprehension on any of the passages, LE was obtained by multiplying the maximum accuracy of comprehension out of the five listening tests and the rate at which it was obtained. The internal consistency reliability of the 40 MC listening items (8 x 5 sets) was .84 for Form 1 and .79 for Form 2 as estimated by alpha coefficient.

In the same way, reading efficiency rates (REs) were calculated by multiplying the number of Words each participant read per minute (R) and its accuracy of comprehension (A), i.e., $RE = R \times A$. When learners answered the questions for both of the passages at least 75% accurately or failed to obtain that level of accuracy on both of the passages, the efficiency rates on the two passages were averaged. However, in the cases where the participants obtained the 75% criterion on either of the passages, that reading efficiency rate was reported. The alpha coefficient for the two sets of MC questions (i.e., 16 items in total) was .69. The summary results of 247 participants' average LE and RE are shown in Table 3, and the correlation between the LE and RE was .65, which was significant at $p < .001$.

Table 3. *LE and RE of the Participants and the Correlation Between the Two Rates*

	LE (SD)	RE (SD)	Correlation (sig.)
<i>N</i> = 247	93.86 Wpm (34.84)	104.22 Wpm (39.02)	$r = .65 (p < .001)$

Questionnaire. Next, a questionnaire (see Appendix C) was administered to all of the participants. It consists of 66 items in addition to nominal biodata. Q1 to Q4 consist of eight items each (i.e., Q1a to Q1h, Q2a to Q2h, and so forth) asking about formal English education at elementary, junior high, and senior high school, and university. Q5 to Q8 are made up of four items each (i.e., Q5a to Q5d, Q6a to Q6d, and so on) asking about English exposure outside of school during elementary, junior high, senior high, and university days. Q9 inquired about years in living in countries where English is spoken; and Q10 focused on the opportunities to use English in the learners' home country.

The remaining 16 items (in Q6 to Q8) asked the learners to choose items describing how they had studied. In addition, students were encouraged to write about their language learning experiences in the margins of the questionnaire. A brief interview was also conducted with some of the participants in order to gain further information.

The students marked the location on a 100-mm line corresponding to the amount of experience they had had with English. (see an example on the first page of the questionnaire in Appendix C.) This measurement technique is called a visual analog scale (VAS). Each item marked was measured from the left edge (i.e., the 0 mm point) of the line to the point where the student had made a mark. In other words, data of this type is recorded as the number of millimeters from the far left side of the line with a range 0 to 100, so that this 101 category rating scale can be analyzed statistically. The purposes of

using a VAS for the questionnaire were (a) to collect interval level data to meet one of the assumptions of the factor and multiple regression analyses used in this study; and (b) to reduce measurement error (e.g., Munshi, 1990).

Result

Before analyzing the questionnaire data, the assumptions of principal component analysis (PCA) and regression analysis were assessed. The items concerning formal elementary education (Q1a to Q1h) were highly correlated over .90 and severely violated normality. Thus, these variables were averaged and then this averaged variable (Q1) was corrected with the transformation formula for substantial skewness. The formula was also applied to the variable indicating years of living in English speaking countries (Q9). University grammar (Q4d) was eliminated from the analysis because the data was severely positively skewed since there was no grammar class at the university, which would introduce biased information to the results. Consequently, 42 variables as shown in Table 4 were used for analysis. Internal consistency reliability measured by the alpha coefficient was .90.

After cleaning up the data, PCA was performed with Varimax rotation.⁴ Missing data were replaced with the mean because they were unsystematically scattered with less than 1% of each variable. PCA extracted 10 components with an eigenvalue of greater than 1. Components with a loading of .30 or over are shown in Table 4. However, I decided to use a loading of .45 (i.e., 20% variance overlap between variable and component; Comrey & Lee, 1992) as a cutoff point for interpretation, which is indicated in boldface in Table 4.

Based on the loadings of the 42 variables on each factor, ten factors were interpreted as shown in Table 5. Interestingly, aural-oral instruction such as listening, speaking, English medium instruction (as seen by F2 and F9), and written instruction such as reading, grammar and writing (as seen by F4 and F7) were clearly separated and loaded on different factors. However, F10 seems to consist of two different factors. Q9 (years of studying in English speaking countries) and Q10 (opportunity to use English in real life) are both concerned with the use of English as a means of communication in real life, while Q1 (elementary education) is about elementary school English education. Thus, F10 was named 'Opportunity to Use English & Early Education.'

Table 4. Rotated Component Matrix of Questionnaire Questions about Past Education

Item	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
Q1(ElmEdu)		.333	.303							.561
Q2A(JrL)		.805								
Q2B(JrR)		.377		.601				.387		
Q2C(JrS)		.827								
Q2D(JrG)				.741						
Q2E(JrW)		.475		.606						
Q2F(JrEngInst)		.798								
Q2G(JrHW)								.627		
Q2H(JrAttitude)				.335				.654		
Q3A(SrL)		.522							.579	
Q3B(SrR)				.620				.386		
Q3C(SrS)		.666							.490	
Q3D(SrG)				.805						
Q3E(SrW)				.663					.347	
Q3F(SrEngInst)		.466							.554	
Q3G(SrHW)				.345				.472	.418	
Q3H(SrAttitude)				.395				.579	.320	
Q4A(UnivL)	.641									
Q4B(UnivR)	.672									
Q4C(UnivS)	.730									
Q4E(UnivW)	.716									
Q4F(UnivEnIns)	.671									
Q4G(UnivHW)	.721									
Q4H(UnivAttit)	.711									
Q5A(OutElmL)					.838					
Q5B(OutElmR)					.876					
Q5C(OutElmS)					.802					
Q5D(OutElmW)					.851					
Q6A(OutJrL)							.761			
Q6B(OutJrR)						.734		.301		
Q6C(OutJrS)							.671			
Q6D(OutJrW)						.788				
Q7A(OutUnvL)			.325				.662			
Q7B(OutUnvR)						.692				
Q7C(OutUnvS)			.442				.593			
Q7D(OutUnvW)						.793				
Q8A(OutUnvL)			.818							
Q8B(OutUnvR)			.810							
Q8C(OutUnvS)			.825							
Q8D(OutUnvW)			.819							
Q9(LiveAbroad)										.715
Q10(UseOppt)			.405							.502

Note. 1. Extraction Method: Principal Component Analysis. 2. Rotation Method: Varimax with Kaiser Normalization. 3. Rotation converged in 12 iterations.

Table 5. Factors Extracted by PCA

All the EFL learners
1. University Education
2. Oral English at Jr. & Sr. High
3. Study Outside University
4. Written English at Jr. & Sr. High
5. Study Outside Elementary
6. Written English Outside Jr. & Sr. High
7. Oral English Outside Jr. & Sr. High
8. Active Participation at Jr. & Sr. High
9. Listening and English Medium Instruction at Sr. High
10. Opportunity to Use English & Early Education

Next, the loading values of these 10 factors were transformed into factor scores and these factor scores were used to predict listening efficiency rates and reading efficiency rates in stepwise (forward) multiple regression analyses with the probability-of-*F*-to-enter criterion set at $p < .20$ in this study. The reason why .20 probability-of-*F*-to-enter was used for this study is that in forward regression, important variables are less likely to be excluded from the model with a probability level for entry in the range of .15 to .20 rather than .05 (Bendel & Afifi, 1977).

Table 6. Factors Significantly Predicting Listening and Reading Fluency

LE	Factor	<i>R</i>	<i>R</i> ²	<i>Adj R</i> ²	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>
	10. Opportunity to Use English & Early Education	.421	.177	.174	14.669	1.964	.421	7.471	.000
	3. Study Outside University	.454	.206	.200	5.931	1.964	.170	3.020	.003
	9. Listening and English-Medium Instruction at Sr. High	.467	.218	.209	3.858	1.964	.111	1.965	.051
	*6. Written English Outside Jr. & Sr. High	.477	.228	.215	-3.389	1.964	-.097	-1.726	.086
	5. Study Outside Elementary	.484	.235	.219	2.852	1.964	.082	1.453	.148
	2. Listening & Speaking at Jr. & Sr. High	.490	.240	.221	2.626	1.960	.075	1.339	.182
RE	Factor	<i>R</i>	<i>R</i> ²	<i>Adj R</i> ²	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>
	10. Opportunity to Use English & Early Education	.382	.146	.143	14.913	2.181	.382	6.836	.000
	3. Study Outside University	.440	.193	.187	8.475	2.181	.217	3.885	.000
	7. Oral English Outside Jr. & Sr. High	.468	.219	.210	6.308	2.181	.162	2.892	.004
	5. Study Outside Elementary	.494	.244	.231	6.102	2.181	.156	2.797	.006

Note. 1. *B*: unstandardized coefficients 2. β : standardized regression coefficients

3. *R*, *R*², Adjusted *R*² are all cumulative. 4. * Factor 6 negatively contributes to LE.

From a review of the results contained in Table 6, it can be noted that six factors, F10 (Opportunity to Use English & Early Education), F3 (Study Outside Univ.), F9 (Listening & English-Medium Instruction during Sr. High), F6 (Written English Outside Jr. & Sr. High), F5 (Study Outside Elementary), and F2 (Listening & Speaking at Jr. & Sr. High), significantly predicted listening fluency. However, F6 shows a negative beta weight, which indicates that less fluent listeners had spent more time on written English study. Reading fluency was significantly predicted by four factors, F10 (Opportunity to Use English and Early Education), F3 (Study Outside University), F7 (Oral English Outside Jr. & Sr. High), and F5 (Study Outside Elementary). According to the final R^2 , 24.0% of their LE was explained by these five significant factors and 24.4% of their RE was explained by these four factors.

Discussion

The factors significantly predicting listening and reading fluency were similar. Three factors were found to be significant for both LE and RE, which are 'Opportunity to Use English & Early English Education (F10)' and 'Study Outside University Class (F3)' and 'Study Outside Elementary School (F5).' This is reasonable considering the fact that learners who are fluent in listening are also fluent in reading as indicated with the relatively high correlation between LE and RE ($r = .65$). In other words, instruction which is effective in increasing listening fluency is also beneficial to reading fluency perhaps because both comprehension processes require automatic word recognition ability (e.g., De Bot, Paribakht, & Wesche, 1997).

The most powerful factor for both listening and reading fluency was to have opportunities to use English and early education (F10). In this study, there were nineteen EFL students who had experienced living in English speaking countries for one year or longer. The mean LE (125.53 Wpm) and RE (140.41 Wpm) of these students were much higher than the average LE (93.86 Wpm) and RE (104.22 Wpm) of all the participants. This implies that experience living abroad had a powerful influence on fluency development because of a rich environment for acquiring English. It is also assumed that such experience gave them a great confidence in their use of English as well as motivation for learning English later on.

Contrary to one-way listening activities such as watching TV or listening to the radio, in a conversation, the parties listen actively and carefully, asking questions and confirming interpretations to make sure they understand what the other person means. This act of active listening may help learners to improve their listening comprehension ability and to learn new words and how to use them during the interaction.

In addition, the parties have to generate original sentences using words they have just heard and other background knowledge they possess in order to carry on the conversation smoothly. Research on the effectiveness of the generative processes of learning has been done for the past few decades (e.g., Gardiner, 1988; Hirshman, & Bjork, 1988; Wittrock, 1990, 1991; Wittrock, & Alesandrini, 1990). Wittrock (1991) mentions that successful teaching of the generative processes of learning involves: "(1) students' preconceptions,

knowledge, and perceptions; (2) motivation; (3) attention; and (4) generation” (p. 174) because teaching that attends to these four factors usually improves comprehension by an average of about 25%–50% or occasionally by over 100% without increasing instructional time or using complicated or expensive materials.

This type of processing requires learners to activate their prior knowledge and experiences during recall, an act that enables them to reformulate the meaning of words (Joe, 1995). Fincher-Kiefer, Post, Green, and Voss (1988) have claimed that tasks which require reading and recall facilitate deeper cognitive processing and the integration of a learner’s domain knowledge with that from the text, while reading without subsequent recall does not demand the retrieval of information from the text. Thus, tasks which demand ‘deeper’ processing, such as read and recall (Fincher-Kiefer, et al., 1988) and retelling (Swain, 1985) are thought to result in more effective learning (Craik & Tulving, 1975; Joe, 1995). In this regard, the use of English as a means of communication in real life would require deep cognitive processing and presumably result in learning.

Besides the importance of output, motivation is a critical factor because most of the significant factors involved the study of English outside of school. It means more fluent readers are students who have been motivated and have made extra effort to learn English. In addition, listening and reading fluency seem to be gained through more integrated instruction involving production skills such as speaking and writing (F10, F3, and F5). Through plenty of such integrated practices, learners will gradually increase the size of their vocabulary, improve their orthographic and syntactic knowledge, and be capable of comprehending fast speech and reading fast. According to the questionnaire, ways in which learners had studied English were diverse. During their elementary school days (F5), some participants had enjoyed videos and/or had studied using audiotapes, while others mentioned that they went to an English conversation school and/or studied with reading materials. Later in their university days (F3), many learners have spent time on assignments for classes they were taking, and/or reading English newspaper, and going to a conversation school.

Another important factor for particularly listening fluency was plenty of spoken input. More fluent listeners had more English exposure at an early age (F10 and F5) and they had continued to have more spoken exposure and practice listening throughout their junior and senior high school years (F2 and F9). In addition, they had had more English medium lessons than less fluent listeners at senior high school (F9). In this regard, more fluent listeners seem to have received more effective aural-oral instruction at school.

These tendencies were contrasted with less fluent listeners, who had spent more time on reading and writing outside of school rather than on listening or speaking as indicated with the negative beta of F6 (Reading & Writing Outside Sr. High). According to the questionnaire, many of them were Japanese students who had translated Japanese sentences into English at *Juku* (cram school) or *Yobikou* (prep school) under the name of ‘*Eisaku*’ (literal meaning of English composition) courses. In Japan, many high school students go to *Juku* or *Yobikou* after school or after graduating from high school for university entrance examinations; however, ‘*Eisaku*’ or English composition classes

involving activities such as translating just a few Japanese sentences into English have been found not to be useful for listening fluency.

As for factors predicting RE, even though the probability-of-*F*-to-enter criterion was set at $p < .20$, all the four significant factors were significant at $p < .01$. This indicates that more fluent readers have significantly more of these features than less fluent readers.

Interestingly, F7 (Oral English Outside Jr. & Sr. High School), which is more directly relevant to listening fluency, appeared as a factor significantly predicting reading fluency. Learners who had had more oral study outside of their junior and senior high school mentioned that they had practiced English conversation at a private school or by making use of radio or TV English conversation programs at home. It can be assumed that if students listen to an English radio program while looking at the listening passage in a textbook, it can be considered reading practice. Because most written words are phonologically processed (e.g., Coltheart, Curtis, Atkins, & Haller, 1993; Segalowitz, Segalowitz, & Wood, 1998), plenty of such listening practice may have significantly enhanced learners' ability to associate words with their sounds (i.e., pronunciation). This would result in increasing word recognition speed and reading fluency.

Regarding this point, several researchers reported the effect of listening-reading combined tasks on fluency (e.g., Noro, 2001; Samuels, 1994; Shany & Biemiller, 1995; Suzuki, 1999; Taguchi, 1999). Suzuki (1999) reported the effect of reading-while-listening activity on reading speed. In this activity, learners read silently or aloud along with a tape, paying careful attention to the correct pronunciation of each word. Another activity reported to be effective, particularly in improving automaticity in word recognition, is 'repeated reading' (e.g., Samuel, 1994). Learners work in pairs and one of them reads a passage aloud repeatedly until he or she is able to read smoothly without any errors while being checked by the partner.

However, more directly related factors to reading fluency such as reading and grammar at school did not appear as significant factors even though the questionnaire indicates that many participants had plenty of those lessons during junior and/or senior high school. This was not because they are not important but because both fluent and non-fluent readers had received them at school under more or less similar circumstances. Therefore, grammar and reading instruction must have been the basis for comprehending passages and the later level of fluency for all of the EFL learners, and it was not a unique factor for fluent readers.

Conclusion and Pedagogical Implications

In this study, EFL learners' educational background was examined in order to find variables predicting successful listening and reading fluency. These results indicate that the most powerful factor for both modalities was the opportunity to use English in real life and to study English at an early age. In addition, more fluent listeners and readers had made more efforts to study or use English outside of school and university. While study outside of school was revealed as a significant factor, school instruction such as reading or grammar did not appear as predicting variables for reading fluency. This was because most

learners had spent a great amount of time on written English study during junior and senior high school regardless of their present fluency.

Another important factor in particular listening fluency was large quantity of spoken exposure. More fluent listeners had had more spoken instruction from an early age through senior high school and received more English-medium lessons. Spoken English activities were also beneficial to reading fluency as the reading process involves phonological coding for word recognition.

From these results, it is very clear that class time at school is not sufficient and thus it does not guarantee successful listening and reading fluency in an EFL context unless learners make great efforts to find opportunities to use English as a means of communication and activate all the four skills as well as the background knowledge they have learnt. In other words, to be fluent in listening and reading, learners need to develop not just the target skill but all the other skills as well. Particularly, the results suggest that less fluent learners need to strengthen spoken aspects of English.

One way to make individual learners work more on spoken English would be to put more emphasis on practical listening skills during senior high school and university entrance examinations, since these examinations have a great impact on the junior and senior high school curriculums in Japan. In addition, if practical listening tasks are required on the examinations, the content of instruction at preparatory schools, which a majority of Japanese students attend after school, will also change in order to deal with the new component on the examinations. As a consequence, students would gain more auditory ability that in turn improves listening fluency as well as reading fluency.

Second, a more drastic washback effect can be expected if university entrance committees and boards of education for English teachers' employment examinations consider students' external speaking test scores such as STEP, SST (The Standard Speaking Test), IELTS Speaking Test, TAST (TOEFL Academic Speaking Test), and so forth. By doing so, those who are motivated to enroll into those universities or to be English teachers will practice speaking intensively. Currently, some universities and boards of education have started to take applicants with high scores on some external proficiency tests such as TOEFL, TOEIC, or STEP into consideration on entrance examinations and English teacher's employment examinations, respectively. Therefore, we have to examine whether speaking test scores can be integrated into those policies.

Third, to maximize the opportunity to provide learners with spoken English in an EFL context, English teachers should teach English in English as much as possible.

Forth, it would be ideal if more high schools and universities would develop a program to study abroad or a credit transfer system for students who are motivated to study abroad. The number of people who go abroad is increasing year by year (Yoshida, 2002), but short-day trips organized by travel agencies may not be very effective in helping students to learn English as they do not provide much chance to use English as a means of communication with local people.

Lastly, English has been introduced into elementary schools in Japan. Students can begin to study English at a much earlier age and for a longer period of time than ever

before. This itself is a good tendency because early English education greatly affects later study. However, a systematic teaching curriculum and guideline for enhancing language acquisition from elementary school to university has not been established yet and there is some controversy and confusion about how and what to teach during elementary school (e.g., Otsu, 2004). Therefore, we should develop a consistent step-by-step curriculum from elementary through university in order for teachers to be able to provide effective instruction.

In an EFL context, not all students will need an advanced level of English. However, it is true that in today's international age, more and more people need to use English not only at an international conference and in the business field but also in daily life as the number of Japanese going overseas and number of people coming from overseas is increasing. To be competitive as a nation and to be a member of the international society, we want as many students as possible to acquire a practical level of English. To achieve that, we need to provide them more opportunities to use English as a means of communication.

Notes

1. In this paper, standard words per minute, which is calculated by counting six character spaces as a standard length word, is used to report listening rate and reading rate. Words per minute, which is calculated by counting the actual number of words read or spoken in a specified amount of time, is not an accurate measure because easier reading or listening material contains shorter words on the average (Carver, 1990). To distinguish a standard word from an actual word, a standard length word will be denoted as Word, standard words per minute will be symbolized using the capitalized 'Wpm,' and actual words per minute will be symbolized using the lower case 'wpm' (cf. Carver, 1990).
2. Passages A to D were adapted from *My English, My Self* (Niki, Watanabe, & Takaya, 1997); passage E was from *TOEFL Shiken-mondai-Listening Comprehension* (Otomo & Stricherz, 1978), and passages F and G were from *Reading Power* (Mikulecky & Jemies, 1986).
3. Before measuring listening efficiency and reading efficiency using these seven passages, MC comprehension questions for the seven passages that were too easy or too difficult were revised by using a Rasch analysis in order to make the difficulty of the passages equal.
4. The varimax rotation method was used in the PCA because it "maximizes the variance of factor loadings by making high loadings higher and low ones lower for each factor" (Tabachnick & Fidell, 1996, p. 647).

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Appendix A

Passage F (Health)

One day Sam Diamond went to the doctor for a checkup. He felt fine. He told the doctor he had no problems. The doctor examined him carefully and listened to his heart. Then he said, "I have bad news for you. You'll have heart trouble soon if you don't change your life. You must lose weight. You must exercise more and you must get more rest."

Sam was unhappy. He liked to eat good food. He usually did not exercise. And he liked to work hard at his job. But he was worried about his heart.

Sam told Susan the bad news. She was worried, too. Then she said, "Maybe the doctor is right. Maybe we do need to make some big changes in our lives."

"This WILL be a big change. I'll have to eat less and start to exercise!" said Sam.

"I'll help you," said Susan. "I'll exercise with you. But I was thinking of some other changes too. I was thinking about taking a real vacation. Let's take a trip somewhere. Let's go some place where you can really relax."

"We can go visit Ted in Italy!" said Sam.

"Or Jane in California!" said Susan.

(Adapted from *Reading Power*, 1986, p.155)

Appendix B

MC Questions

Passage F (Health)

- Q1. This passage is about
- exercise and dieting.
 - how the doctor examined Sam.
 - how Sam's heart trouble may change his life.
 - how Sam feels about exercise and dieting.
- Q2. When Sam went to the doctor, he did not
- feel well
 - feel sick.
 - know what to say.
 - have any trouble.
- Q3. After he saw the doctor, Sam did not
- worry.
 - go home.
 - have any problems.
 - feel happy.
- Q4. The doctor told Sam he must
- get more rest.
 - work harder.
 - feel sick.
 - travel.
- Q5. When she heard the bad new, Susan was
- sad.
 - happy.
 - sick.
 - worried.
- Q6. Susan told Sam she
- did not want to exercise.
 - did not want to go to California.
 - wanted to go to Italy.
 - wanted to help him get exercise.
- Q7. Sam wanted to go to Italy because
- it is warm there.
 - it is far away.
 - Ted lives there.
 - it is different.
- Q8. Susan wanted to go to California because
- it is warm there.
 - it is far away.
 - Jane lives there.
 - it is different.

Appendix C

Questionnaire

The purpose of this questionnaire is to inquire about English education you have had so far. I would appreciate it if you would take the time out of your busy schedule to answer this questionnaire.

Name () Your major () Year ()
 Nationality () Native language ()
 Second/foreign language(s) ()

Please check the frequency line like the example.

none _____/_____ very much

Q1. I studied English in elementary or primary school. (hrs/wk for years)

There was instruction in:

- a. listening: not at all _____ very much
- b. reading: not at all _____ very much
- c. speaking: not at all _____ very much
- d. grammar: not at all _____ very much
- e. writing: not at all _____ very much
- f. The teachers spoke in English during the lessons.
 not at all _____ very much
- g. I had take-home assignment in English classes.
 none _____ very much
- h. I actively participated in the English classes.
 not at all _____ very much

.

Q9. I lived in English speaking countries. (for years and months)

no time at all _____ many years

Q10. I had many opportunities to use English in my home country.

none _____ very much

Thank you for your cooperation.