EFL Reading Speed and Reading Comprehension

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Abstract: A strong relationship between reading rate and comprehension in L1 and L2/FL reading has been reported in a few previous studies. However, other researchers argued that learners suffer lower levels of reading comprehension when being trained to read faster. This study examines the relationship between EFL reading speed and reading comprehension within and outside a speed reading course. The examination suggests that reading speed improvement does not necessarily negatively affect comprehension, and that EFL learners can be trained to increase their reading speed and reading comprehension at the same time.

Key words: *reading speed, reading comprehension, reading rate, speed reading, reading courses, speed reading courses, comprehension, EFL learners, L2 reading, reading in a foreign language*,

I.   LITERATURE REVIEW

Reading speed, or silent reading rate is popularly accepted as one of the indicators of reading fluency. It is generally understood as the rate of word recognition, which is the total number of words per minute a person can recognize. Researchers have pointed out that a normal skilled L1 reader reads at around 250-300 wpm and makes approximately 90 fixations per 100 words (Nation, 1997; Carver, 1982). Research on reading speed in L2/FL silent reading is a relatively new area. Researchers have suggested that a reasonable goal for second language learners who are reading materials with no new words should be around 250 wpm (Nation, 2005) but mention that reading speed in L2/FL is slower than in L1 (Droop & Verhoeven, 2003; Fraser, 2007). Although recently L2/FL researchers and educators are focusing on methods to increase L2 and FL reading rate (Day & Bamford, 1998), the area of reading speed in L2/FL is still in its infancy.

Researchers have also attempted to formulate methods to measure reading speed for L1 silent reading (Vacca & Vacca, 1999) and L2/FL silent reading (Bismoko & Nation, 1972; 1974; Chung & Nation, 2006; Gorsuch & Taguchi, 2008). This indicator of reading fluency is conventionally measured by the words per minute calculation, the one-minute reading probe and the entire text method have been used in both L1 reading research (Harris & Sipay, 1985) and L2/FL reading research (Iwahori, 2008; Lai, 1993). Particularly in L2/FL research, the three-minute probe and the ten-second interval method have been used (Bell, 2001; Macalister, 2008; Millett, Quinn & Nation, 2007; Sheu, 2003).The nature of comprehension in reading has been explored in numerous studies. Some researchers see it as a state of having questions answered (Smith, 1978) in which readers have to find a configuration of hypotheses which offer a coherent account for the various aspects of the text. In order to comprehend a text, readers modify the organisational structure of the texts for their own purposes (Calfee & Curley, 1984). While reading they keep making predictions, or questions based on their theories about the world, and if the questions are answered while or after reading, comprehension is achieved (Smith, 1978).A large and growing body of literature has investigated the components of comprehension. One of the main themes in the literature is the simple view of reading, which holds that comprehension can be decomposed into *linguistic comprehension* and *reading comprehension* (Dombey, 2009). *Linguistic comprehension* refers to the action of using vocabulary knowledge to interpret the text and *reading comprehension* is the same ability, which, on the other hand, relies on printed information arriving through the eye. In order to assess *linguistic comprehension*, testers should ask questions about the contents of a text presented orally while to test *reading comprehension*, they must ask questions about a text in printed form. Some other researchers divide comprehension into two components: comprehension and interpretation (Urquhart, 1987). *Comprehension* involves what the reader utilizes according to his reading aims. *Interpretation* concerns the differences between people who read the same text, or within one person when reading different texts. These differences may be due to such factors as background knowledge and cultural presuppositions.

Many researchers suggest including comprehension accuracy as an indicator of fluency in silent reading (Gorsuch & Taguchi, 2008; Nation, 2005; Yamashita & Ichikawa, 2010). Reading faster will be meaningless if the reader comprehends little of the text. A fluent reader should be able to both read quickly and comprehend the text at the same time. Comprehension accuracy, therefore, should be one of the indicators of

fluency in silent reading. Some researchers have suggested a goal of at least 75% comprehension in L1 reading (Carver, 1992) or around 70% accuracy in L2/FL reading (Millett, Quinn, & Nation, 2007).

Prior studies have proposed several methods to assess comprehension in reading. The most popular methods are true-false questions, multiple choice questions, short answer questions, recall tests and participant self-reports (Alderson, 1990; Gorsuch & Taguchi, 2008; Iwahori, 2008). In many speed reading courses, the learners are asked to keep a graph of their speed in words read per minute and a graph of their comprehension score on the accompanying questions. In this way, the teacher can see students' progress in reading speed and at the same time be informed about their comprehension level (Macalister, 2008; Millett, Quinn & Nation, 2007; Quinn & Nation, 1974).

While reading speed is generally thought to be associated with comprehension and past research has given insight into the relationship between these aspects, there still has been much controversy on this issue. A strong relationship between reading rate and comprehension in L1 reading has been reported in previous studies (Bowey, 2005; Perfetti, Landi, & Oakhill, 2005; Stanovich, 2000). Specifically, Nicholson and Tan (1997) and Levy, Abello and Lysynchuk (1997) found that poor readers benefit from rapid decoding training and suggested that in L1 children's oral reading, speed increases facilitate comprehension (Nicholson & Tan, 1999). Schwanenflugel et al. (2006) found that comprehension was substantially affected by reading fluency and autonomy but this role decreases as age increases. The results indicated that once a reader has reached a fluent level, factors other than fluency affect reading comprehension. However, other researchers have demonstrated a weak relationship between fluency skills and reading comprehension level (Carver, 1992; Kuhn & Stahl, 2003). Bell, for example, pointed out that "*techniques employed on speed reading courses tend to cause readers to suffer lower levels of reading comprehension*" (Bell, 2001, p.1).

The link between comprehension and speed in L2/FL reading has not been clearly portrayed. Past research found that speed and comprehension are not competing components in L2 performance, and that the two factors have a supporting relationship in that speed promotes accuracy in comprehension and accuracy is one of the indicators of fluency development (Alessi & Dwyer, 2008; Segalowitz & Segalowitz, 1993). In Chang's (2010) study, a reading activity was integrated into the usual program for 13 weeks to improve 84 college students' reading rates. Results indicated that the participants increased their reading speed by 25% and their comprehension level increased by 4%. This low increase is probably due to a ceiling effect in the measurement, but it shows that speed increase does not result in a drop in comprehension.

II.   METHODOLOGY

This study examines the relationship between speed and comprehension in L2/FL reading by looking at the participants' comprehension scores and reading rates on the texts they read during a speed reading course.The experiment involves four groups of participants: the treatment groups (hereafter called group A and group B), and the control groups (hereafter called group C and group D). All of them were first year students at a university in Vietnam. During the treatment, the participants read 20 texts taken from *Asian and Pacific speed readings for ESL learners* (Millett, Quinn & Nation, 2007). Each of the texts contained 550 words and was accompanied by ten comprehension questions. All of them were written at the 1,000 word level. A vocabulary test taken from Schmitt, Schmitt, and Clapham (2001) was used before the treatment to make the participants had reached the desired vocabulary level for the speed reading course. Two texts, each of which was accompanied by ten comprehension questions, were used for the pre-test and post-test. These texts were taken from graded readers at the 1,000 word level modified to contain approximately similar numbers of total words, academic words, words at the 1,000 word level, words at the 2,000 word level, and off-list words.

Pilot testing of the texts in the speed reading course was done in order to avoid the possibility that the texts were not appropriate for learners who had reached the required vocabulary level, and that some texts were markedly easier or more difficult than the others. The pilot testing of the vocabulary test showed that it measured properly the amount of vocabulary needed to read the speed reading texts. Finally, the pilot testing of the pre-test and post-test also helped make sure the texts were equal in terms of difficulty and vocabulary level, the instructions were clear and comprehension questions were relevant. Before the treatment, all the four groups sat the pre-test. Then, the treatment groups did the vocabulary test before following the speed reading course. They had three speed reading sessions every week for seven weeks. After that, all participants in the four groups had to sit the post-test. During the course and on the pre-test and post-test, both the participants' reading speeds and reading comprehension scores were recorded. What happened during each of the speed reading sessions was as follows: The teacher wrote the time on the board before giving out the readings. The readings were put face down so that the students could not start reading it before they were told to do so. When all the students had been given a text, the teacher said "Go" and started the stop watch at the same time. The students read the text while the teacher was pointing at the time on the board. When finishing reading the text, the students looked up to the board to check the time they spent, recorded the time in the progress chart, and then answered the

comprehension questions. After answering the comprehension questions, the students checked the answer key and recorded their comprehension score. Finally the students handed the teacher their texts and progress charts. In order to eliminate the text effect, during the treatment, the twenty texts were distributed among the participants to ensure that in each of the session, as few students as possible were reading the same text. Similarly, on the pre-test, half of the participants from each group were asked to do one text and the other half had to do the other text. On the post-test, the administration was the reverse of that on the pre-tests.

III. FINDINGS
Reading speed and reading comprehension in the speed reading course

In this study, reading speed was measured by the words per minute calculation. In order to measure the participants' reading speed improvement in the course, *the average scoring method* was used. This scoring method was also used, together with other two methods called *the 20th minus 1st scoring method*, and *the extreme scoring method,* by Chung and Nation (2006) in their study. The *average scoring method* takes the average score on the first three texts minus the average score on the last three texts. The 20th minus 1st scoring method takes the score on the 20th text minus the score on the 1st text. The *extreme scoring method* takes the highest score minus the lowest score. Each of the three methods has advantages and disadvantages and can be used for different purposes. However, in this study, the average scoring method was used because it involves two sets of three measurements, which makes the measurement much more reliable.

Table 1 Means and standard deviations of in-course speed increases for the treatment groups

	Group A	Group B
n	31	30
Mean	57.00	50.90
SD	40.52	29.91

The results show that both control groups made increases of over 50 wpm (see Table 1). Only one participant suffered a decrease in reading speed. The reliability of the speed improvement was confirmed by several other findings: First, the two groups had similar average initial scores (see Table 2). Second, all participants had their slowest speed in the first half of the course and 90% of the participants reached their highest speed in the second half of the course (see Table 3). Third, it was a trend that the participants with the highest initial speeds reached the highest final speeds and the participants with the lowest initial speeds had the lowest final speeds. Finally, 82% of the participants made a gradual increase throughout the course (Table 4).

Table 2 Means and standard deviations of initial speeds and final speeds in the course for the treatment groups

			Group A	Group B
Initial speeds	Speed on the first text	Mean	128.64	132.76
		SD	29.53	27.24
	The average speed on the first 3 texts	Mean	131.96	132.36
		SD	27.28	23.80
Final speeds	Speed on the last text	Mean	189.67	183.80
		SD	44.11	39.86
	The average speed on the last 3 texts	Mean	188.90	183.36
		SD	40.73	38.18

Table 3 The percentage of participants having their slowest and fastest speeds in the four parts of the course

	#1 to #5	#6 to #10	#11 to #15	#16 to #20
Slowest speed	89%	11%	0%	0%
Fastest speed	3%	7%	20%	70%
Three slowest speeds	83%	14%	3%	0%
Three fastest speeds	2%	8%	18%	72%

Table 4 Numbers of participants for different change patterns

Group	No improvement	Erratic change	Plateau change	Gradual change	Mixed
Group A	2	1	3	25	0
Group B	0	3	2	25	0
Total	2 (3%)	4 (7%)	5 (8%)	50 (82%)	0

The participants' comprehension accuracy was measured by counting the number of correct answers they made on each of the twenty texts in the speed reading course. Two comparisons were made. First, the average score on the first three texts was compared with the average score on the last three texts. Second, the average score on the first half of the texts was compared with the average score on the second half of the texts.

Table 5 Means and standard deviations of comprehension scores on the first three texts, the last three texts, in the first half and the second half of the course for the two treatment groups

Measure		Group A	Group B
First three texts	Mean	7.34	7.16
	SD	0.85	0.59
Last three texts	Mean	7.84	7.74
	SD	0.68	0.65
First half of the course	Mean	7.11	7.21
	SD	0.58	0.37
Second half of the course	Mean	7.67	7.44
	SD	0.45	0.31

As can be seen in Table 5, both group A and group B had an average score of over seven out of 10 on the first three texts, the last three texts, the first half of the texts and the second half of the texts. Comparing the groups' average scores on the last three texts with their average score on the first three texts showed that both groups made slight increases. Comparing their average scores on the first half of the course with their average scores on the second half of the course showed the same trend. The data indicated among 61 participants, only 10 participants had their average score on the last three texts lower than their average score on the first three texts, but the decreases were minimal from 0.33 to 1.33. The rest either had the same or higher average score on the last three texts as compared to the average score on the first three texts. Note the small standard deviation showing the comprehension was generally around the desired 7 out of 10. With regard to the difference between the first half and the second half of the texts, only 14 out of 61 participants had a negative result but the decreases were less than 0.80. The other 47 participants made an improvement from 0.10 to 2.67. These results show that most participants could keep their comprehension accuracy at the same level as they increased their speeds. This both reinforces the idea that they made real progress in reading speed and that speed reading courses can help readers to improve their speed without comprehending less.

Reading speed and reading comprehension on the pre-test and post-test

For the pre-test and post-test data, the participants' reading speeds were measured by taking the speed on the post-test text minus the speed on the pre-test text. Their reading comprehension was measured by counting the number of correct answers they had out of the ten comprehension questions that accompanied each text.

With regard to speed improvement, as shown in Table 6, the treatment groups outperformed the control groups. The average increase the control groups made was 15 wpm and the average increase the treatment groups made was 48 wpm. Group B made the greatest improvement with an average increase of 50 wpm. Group A ranked the second with an average increase of 46 wpm. Then came group D with an average increase of 20 wpm and group C with an average increase of 10 wpm. A comparison between the participants in the control groups and the participants in the treatment groups showed that only two participants in the treatment groups (3%) but 14 participants in the control groups (25%) had negative results. Only three participants in the control groups (5%) had increases of over 50 wpm whereas more than a half of participants in the treatment groups (52%) had increases of over 50 wpm. Most of the 29 participants with the biggest increases were in the treatment groups and most of the 29 participants who made the least improvement were in the control groups.

Table 6 Means and standard deviations of speed increases on other types of texts for all groups

		Treatment groups		Control groups	
		Group A	Group B	Group C	Group D
Individual groups	Mean	46.16	50.43	10.46	19.65
	SD	27.34	24.28	29.60	27.37
Average of two treatment groups and two control groups	Mean	48.26		15.30	
	SD	25.76		28.56	

A repeated measures ANOVA was carried out on the pre-test (initial score) and post-test (final score) data. The repeated-measures factor was time (pre-test vs. post-test) and the between-subjects factor was group. The results are shown in Table 7 below.

Table 7 Means and standard deviations pre-test speed and post-test speed on other types of texts for all groups

		Group				Analysis of variance		
		Group A	Group B	Group C	Group D	Group F(3,112)	Time F(1,112)	Interaction F(3,112)
Pre-test	Mean	118.87	119.73	118.96	113.83	4.36**	157.47**	14.88**
	SD	34.95	39.62	26.12	30.72			
Post-test	Mean	165.03	170.17	129.42	133.48			
	SD	36.75	34.62	20.51	27.19			

** $p < .01$.

The results showed that there was a general gain for all groups from pre to post-test, $\eta^2 = .584$. There was a significant overall group effect but this is not meaningful in this context. The result of interest was the interaction (group x time) showing that the gains from pre-test to post-test for the two treatment groups were significantly greater than for the control groups, $\eta^2 = .285$. As can be seen from Figure 1, the treatment groups made a significant improvement in reading speed, and their mean improvement was greater than the more modest gains of the control groups.

Figure 1 Estimated marginal means of speed increases on other texts for all groups
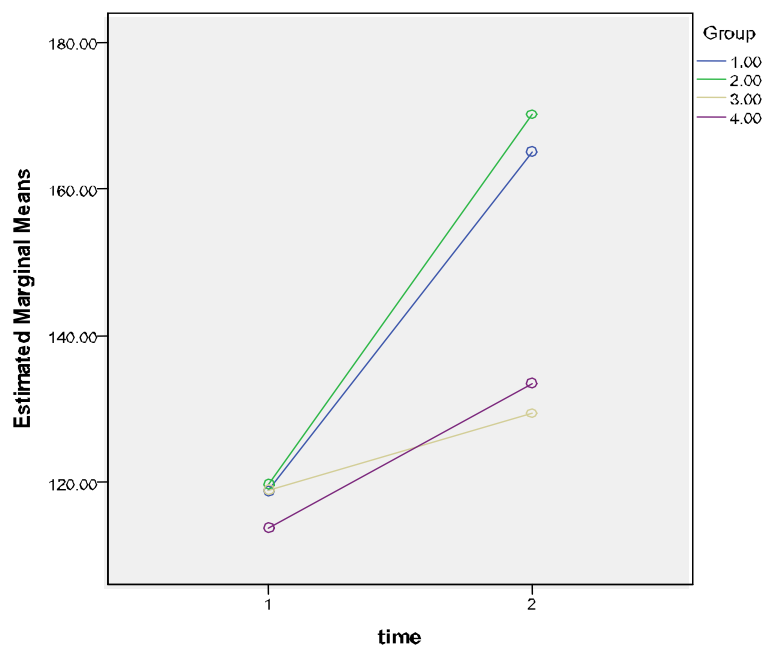
To determine the nature of the interaction effect, a one way ANOVA compared the gain scores (pre-test to post-test) of the four groups. The results showed the mean scores of the four groups were significantly different, $F (3, 112) = 14.88$, $p = .000$, $\eta^2 = .285$. The mean gain score for group A speed training was 46.16 (N=31, SD = 27.34). The mean gain score for group B speed training was 50.43 (N=30, SD = 24.28). The mean gain score for group C control was 10.46 (N=26, SD = 29.60). The mean gain score for group D control was 19.65 (N=29, SD = 27.37).

Pairwise comparisons using the Bonferroni adjustment for multiple comparisons showed a significant difference between group A and group C (p = .000) and between group A and group D. (p = .002). There was also a significant difference between group B and group C (p = .000) and between group B and group D (p = .000). There was no significant difference between groups C and D (p = 1.000).

Regarding reading comprehension, the participants' results were classified into three types. The first group were the ones who increased their comprehension level (Increase group). The second group consisted of participants who kept their comprehension at the same level (Consistent group). The third group had their comprehension scores decrease (Decrease group). Table 8 shows the numbers of participants in each of the three groups, their initial average comprehension scores, initial average speed, final average comprehension scores, final average speeds, and the differences each group had between their initial and final figures. For instance, with respect to the increase group, their average initial comprehension score was 4.81 out of 10 and in the post-

test they had an average score of 7.36, thus making an average increase of 2.55. These participants' average initial speed was 116 wpm and they made a 44 wpm increase in the post-test.

Table 8 Means and standard deviations of initial comprehension scores (Initial CS), post-test comprehension scores (Final CS), initial speeds (IS) and final speeds (FS) for three subgroups

Group	n		Initial CS	Final CS	Difference	IS	FS	Difference
Improve group	72	Mean	4.81	7.36	2.56	116.42	160.28	43.86
		SD	1.73	0.91	1.73	33.75	36.52	27.39
Consistent group	24	Mean	6.67	6.67	0	129.58	138.67	9.09
		SD	1.81	1.81	0	33.37	29.72	25.82
Decrease group	20	Mean	6.25	4.6	-1.65	109.12	131.09	21.97
		SD	1.12	1.39	0.93	27.23	25.71	22.63

Overall, the data indicate that 72 out 116 participants increased their comprehension accuracy, 24 kept it at the same level and 20 had a decrease. The increase group had the lowest average score on the pre-test but reached the highest average score on the post-test. This group also made the greatest increase in reading speed. The consistent group had the highest average score on the pre-test but did not make any improvement on the post-test. This group made the least improvement in reading rate although their initial speed was the highest. The decrease group had a similar initial comprehension score to the consistent group, but failed to maintain it. This group made a better average increase in speed than the consistent group. These results suggest that the participants who made the greatest improvement in reading speed made the most improvement in comprehension accuracy and that for readers who start at low reading rates, success in reading at faster speeds does not cause a comprehension decrease.

A comparison of individual participants' speeds and comprehension scores showed that among the 16 participants whose speeds decreased, only five participants had their comprehension score increase. On the other hand, among the 100 participants who made progress in reading speed, only 17 participants had their comprehension score drop, 67 participants had their comprehension score increase, and 16 participants had their comprehension score remain at the same level. These results agree with the results drawn from analysing the data at group level.

Table 9 Comparison of comprehension improvement for the control groups and the treatment groups

	Group A	Group B	Group C	Group D
Improve group	27 (87%)	26 (87%)	10 (39%)	9 (31%)
Consistent group	2 (6%)	2 (7%)	11 (42%)	9 (31%)
Decrease group	2 (6%)	2 (7%)	5 (19%)	11 (38%)

A comparison (see Table 9) between the control groups and treatment group showed that the treatment groups outperformed the control groups. While most of the participants in the treatment groups increased their comprehension accuracy, most of the participants in the control groups did not increase their comprehension accuracy. This result suggests two interpretations. First, the speed reading course helped the participants to maintain their comprehension while speeding up, thus most of the participants who followed the course did not have to trade comprehension for speed. Second, there may be a link between comprehension and reading speed improvement in that the participants who greatly increased their speed tended to improve their comprehension accuracy while it was less likely that participants who marginally increased their speeds would improve their comprehension accuracy.

A repeated measures ANOVA was carried out on the pre-test (initial score) and post-test (final score) data. The repeated-measures factor was time (pre-test vs. post-test) and the between-subjects factor was group. The results are shown in Table 10 below.

Table 10 Comparison of comprehension improvement for the control groups and the treatment groups

		Group				Analysis of variance		
		Group A	Group B	Group C	Group D	Group $F_{(3,112)}$	Time $F_{(1,112)}$	Interaction $F_{(3,112)}$
Pre-test	Mean	5.10	5.17	5.50	6.14	.10	40.55**	5.38**
	SD	1.66	1.51	2.39	1.83			
Post-test	Mean	6.94	7.20	6.62	6.17			
	SD	1.03	1.45	2.00	1.69			

** $p < .01$

The results showed that there was a general gain for all groups from pre to post-test, $\eta^2 = .266$. The group effect was not significant. The interaction (group x time) analysis indicated that the gains from pre-test to post-test for the two treatment groups were significantly greater than for the control groups, $\eta^2 = .126$. Figure 2 illustrates that the treatment groups made a significant improvement in comprehension while group C control made a smaller increase. Group D control's comprehension level almost remained the same from the pre-test to the post-test.

To determine the nature of the interaction effect, a one way ANOVA compared the gain scores (pre-test to post-test) of the four groups. The results showed the mean scores of the four groups were significantly different, $F(3, 112) = 5.38$, $p = .002$, $\eta^2 = .126$. The mean gain score for group A comprehension increase was 1.84 (N = 31, SD = 1.95). The mean gain score for group B comprehension increase was 2.03 (N = 30, SD = 1.90). The mean gain score for group C control was 1.12 (N = 26, SD = 2.88). The mean gain score for group D control was 0.35 (N = 29, SD = 1.66).

Figure 2 Estimated marginal means of comprehension increases for all groups
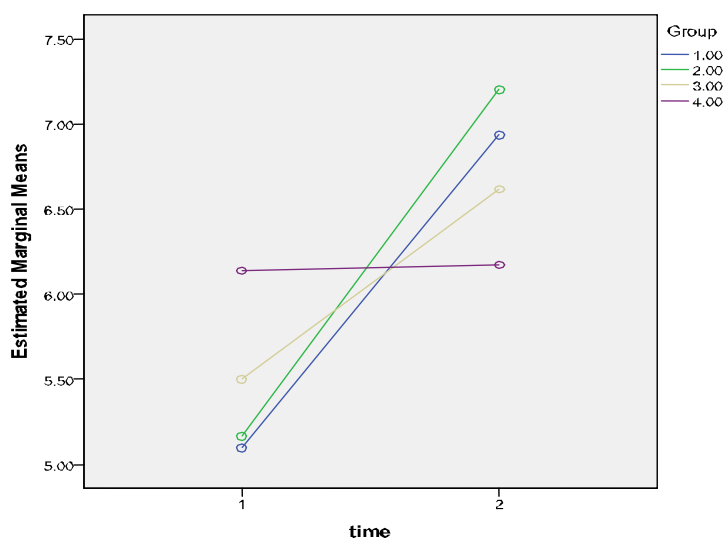
Pairwise comparisons using the Bonferroni adjustment for multiple comparisons showed a significant difference between group A and group D (p = .008) and between group B and group D (p = .003). However, there was not a significant difference between group A and group C (p = 1.000) and between group B and group C (p = .652). There was no significant difference between groups C and D (p = .369).

These results suggested that the treatment groups could maintain or increase their comprehension while improving their reading speed and their gains were significantly greater than group D. The fact that the two treatment groups did not make a significantly bigger increase in comprehension than group C, may have something to do with the modest speed increase that this control group made. While group D made an increase of 20 wpm, group C made an increase of only 11 wpm. Perhaps without speed training, group D and group C suffered from a trade-off relationship between comprehension and speed in which a bigger increase in speed led to a smaller increase in comprehension. It was probable that group C could not increase their speed as much as group D because they were paying more of their attentional resources to comprehend the text. Overall, these results suggest a positive spinoff for speed-reading training and comprehension because groups A and B were able to read the transfer texts faster than groups C and D, yet still achieved similar comprehension to group C and achieved greater comprehension than group D.

IV. DISCUSSION

The study set out to explore the relationship between EFL learners' reading speed and reading comprehension within and outside a speed reading course. The findings support arguments in some previous first language studies (Bowey, 2005; Chang, 2010; Perfetti, Landi & Oakhill, 2005; Segalowitz & Segalowitz, 1993; Stanovich, 2000) and expand research on the relationship between EFL reading speed and reading comprehension. It was found that within the speed reading course, the treatment groups made increases of over 50 wpm. Most participants were reading with 70% accuracy of comprehension and could maintain it with a slight increase as they increased their reading speed. This shows that they were reading and comprehending the text rather than just looking at the words without understanding the presented thoughts. The data also indicate that even in the sessions where they reached their fastest speeds, their comprehension accuracy was still kept at similar levels. This result demonstrates that in a speed reading course in EFL, reading rate can increase without

comprehension suffering. Regarding reading texts outside the speed reading course, the evidence from this study suggests that speed improvement transfers to other types of texts. Both treatment groups made substantial increases on other types of texts. Comparisons between the treatment groups and control groups were significant at the p<0.5 level. The majority of the participants increased their comprehension accuracy or kept it at the same level as they improved their reading rates. Only around 27% of the participants scored less on comprehension and these participants were the ones who made the least speed improvement. This supports the idea that reading faster does not necessarily degrade comprehension and that people can actually learn to increase both reading rate and comprehension at the same time. Besides, the experiment also found that the treatment groups made more improvement in comprehension than the control groups. While only around 35% of the control groups increased their comprehension accuracy, 87% in the treatment groups could increase comprehension. Interestingly a trade-off relationship between reading rates and comprehension level was found at the beginning of the treatment but not at the end of the treatment. In a comparison between reading rates with comprehension scores on the pre-test, there appeared to be a trend that the higher reading speed a participant had, the lower comprehension score the participants made. This can be explained by the participants' reading habits before the treatment. It might be that the participants who had more correct comprehension answers were likely to be the ones who tried to slow down to get more information from the text. On the other hand, the participants who read faster dropped their comprehension as compensatory behaviour. However, the trade-off relationship between reading speed and comprehension does not hold for the post-test when the participants had had the training in speed reading. The results from group A and group B showed that participants with the highest final speeds also reached the highest scores on comprehension.How did the speed reading course actually help the participants to maintain or slightly increase their reading comprehension while improving their reading rate? Reading relies on two functions: word recognition and comprehending. Word recognition is something that can be trained to consume less attentional resources. The less attentional resources readers need to recognize words, the more attentional resources they will have for the controlled process of comprehending, thus the faster they read. For most adults reading their L1, word recognition is already automatic. This can explain why they do not gain many benefits from speed reading courses. By contrast, L2/FL learners still have to learn morphosyntactic knowledge to automatize their word recognition (Droop & Verhoeven, 2003), especially if their competence in the language is limited. It takes much effort to perform the recognition process and hence leaves less resources for comprehending. As a result, the readers have to slow down their speed to maintain appropriate comprehension. In a speed reading course in L2/FL, through practice learners' word recognition can become faster, giving them more time to concentrate on comprehending. As a result, their reading speed may increase while their comprehension is still maintained.

CONCLUSION

The findings highlight the effect of the speed reading course in training EFL learners to improve their reading speeds without comprehension suffering. This finding extends our understanding of the effectiveness of speed reading courses. While it is argued that in a speed reading course in L1, learners may suffer a decrease in comprehension if they increase their speeds (Carver, 1992), the current finding suggests that in a speed reading course in L2/FL, comprehension does not necessarily have to compensate for reading rate increases.

The results were contrasting with the findings in some previous research on the relationship between reading fluency and comprehension (Kuhn & Stahl, 2003) but supported findings by Chang (2010), Segalowitz and Segalowitz (1993), Yuan and Ellis (2003), and Wigglesworth and Storch (2009). It was found that reading fluency development does not necessarily happen with a trade off in comprehension. By contrast, comprehension can be maintained or improved along with reading speed improvement. The results indicated that participants who had not been trained with speed reading tended to slow down their speed when they wanted to obtain more comprehension. As a result, their reading rate and comprehension appeared to be in a trade-off relationship. However, after being trained in speed reading, they could increase their reading speed without their comprehension declining. Many of them even improved comprehension while increasing their reading rate. This finding may be helpful for teachers and learners as it encourages learners to read faster without fearing that they will comprehend less. For a long time reading instructors have struggled with the learners' low confidence about their comprehension level, which probably plays a psychological barrier in the learning process. Thus, evidence that comprehension and reading speed are not in a trade-off relationship may help teachers and learners to be more confident to use techniques and devices to promote reading speed.

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