Using Repeated- Reading and Listening –While- Reading via Text-To-Speech APPs. in Developing Fluency and Comprehension

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Abstract

One of the challenges in teaching a foreign language is: finding appropriate ways to enable students to develop their reading fluency and comprehension. Repeated reading and listening-while-reading are two significant strategies that enhance students' fluency and comprehension. This study aimed to develop fluency and comprehension of EFL college students. During the treatment, the teacher trained the students to use some free Text to Speech apps that support oral repeated reading RR and listening while reading LWR activities. Pre-post tests were used to assess students' reading fluency and comprehension. Data obtained from the tests were analyzed statistically through SPSS software. Results indicated development in students' reading fluency and comprehension. Conclusions suggested the use of RR and LWR through Text to speech apps to assist the reading skills of higher education students. It is recommended that TTS Apps are promising tools that can be integrated into reading instruction.

Keywords: listening while reading, reading comprehension, reading fluency, repeated reading, text to speech Apps

1. Introduction

Reading skill is significant in learning of foreign languages. Reading skills range from the ability to comprehend written texts toward the oral fluency skills. Fluency appears in the teaching of reading to mean reading ability at an appropriate speed without errors in pronunciation and intonation (Kuhn, Schwanenflugel, Meisinger, & Rasinski, 2010)). Fluency gives an indication of students' proficiency in the language (Rossiter, Derwing, Manimtim, & Thomson, 2010). Furthermore, it is one of the prime components of reading competency (Khor, Low, & Lee, 2014). Besides, fluency is a significant skill that is correlated with comprehension and academic achievements (Bennett, Gardner, Cartledge, Ramnath, & Council 2017). It is the medium between comprehension and word recognition Without reading comprehension, students will not be able to understand the material of study. So, it is necessary to develop oral reading fluency and comprehension.

Some strategies can be implemented to develop fluency and reading comprehension, such as repeated readings and listening while reading (Winn, Skinner, Oliver, Hale, Ziegler, 2006). Studies show that reading comprehension and listening comprehension are linked; consequently, students who have reading comprehension problems tend to have listening comprehension difficulties as well. As a result, it is recommended to combine listening with reading to enhance students related skills. (Tennent, 2015). Listening-while-reading has been proven as one of the assisted reading techniques that enhance reading fluency (Rasinski, & Hoffman, 2003). Repetition of texts or repeated reading allows automatic word recognition, and it also develops aspects of prosody (Cohen, 2011). Therefore, certain strategies such as RR and LWR can be coupled to improve students' reading comprehension and fluency.

In the field of reading, research studies showed that mobile applications, and computer software helped to enhance reading fluency and comprehension (Barber et al., 2018; Hartness, 2011; Keezhatta & Omar, 2019; Papadima-Sophocleous and Charalambous, 2014). Rochdi and Eppard (2017) and Özbek and Girli (2017) revealed that mobile Apps could be utilized to motivate students to read, engage in activities, and improve comprehension and fluency. Other studies indicated that mobile Apps helped to promote oral reading production of language learners (e.g., Marques, Manso, Ferreira, & Morgado, 2017; Pellerin, 2014). Moreover, using digital texts on mobile devices can motivate students to read and practice fluency (Thoermer & Williams 2012). Some studies examined TTS Apps effect on students' reading skills (e.g., Bone & Bouck, 2017; Wood, Moxley, Tighe, & Wagner, 2018; Young, Courtad Douglas, Chung, 2019)

Accordingly, previous studies have validated procedures and interventions or instructions to develop oral reading fluency in young learners. Therefore, studies are needed to merge the gap in education mobile app research; since most of them were conducted among ESL young learners. Besides, many studies on reading fluency have examined the context of the first language, so others could investigate the possibility of gaining similar results in a foreign language context. All in all, understanding the problems of EFL learners concerning their need to enhance reading fluency and comprehension and the supposed advantages of the use of mobile apps in ELT such as TTS Apps; the present study tries to examine the use of repeated reading and listening-while–reading supported by Text to Speech apps to develop adult learners' reading fluency and comprehension.

2. Review of Literature

2.1 Reading Fluency and Comprehension

Reading fluency is rooted in the Theory of Automaticity in Reading. Automaticity is the skill to look at printed words and then read them directly and effortlessly (Logan, 1997). Fluency in reading has a relationship with comprehension and academic achievement. It reflects a degree of overall proficiency, and it is an indicator of the skilled reader. "Fluency combines accuracy, automaticity, and oral reading prosody, which, taken together, facilitate the reader's construction of meaning. It is demonstrated during oral reading through the ease of word recognition, appropriate pacing, phrasing, and intonation"(Kuhn et al., 2010, p.242).

Sub-skills of fluency include accuracy, prosody, and reading rate. To be fluent in reading, students have to master these constructs. The first component of fluency is reading accuracy, which refers to decoding the phonological representations of written words. Automaticity word recognition is the second construct of fluency. It is driven by the automaticity theory, and it implies the speed of recognition and aspects of accuracy (Samuels, 2004, 2006). If students have difficulties in word recognition, their comprehension is affected badly and their oral fluency as well. In other words, it may hinder their comprehension; therefore, students may face difficulties in oral fluency. On the contrary, fluent readers with an appropriate rate of speed recognize words easily with little cognitive efforts (Schwanenflugel & Ruston, 2008). The third construct of fluency is prosody. Reading with prosody means to read expressively in terms of intonation, rhythm, pausing, and stress and emphasize (Groen, Veenendaal & Verhoeven, 2019). Learners differ in their prosodic abilities, which in turn affect their reading fluency. Thus, prosody indicates learners' reading fluency, and it is correlated to its development. Besides, these aspects of fluency affect reading comprehension as indicated by Kieffer & Christodoulou (2020) who pinpointed that fluency is a moderator between executive functions and reading comprehension.

Reading comprehension simply means to decode and interpret written input. It is a multilevel skill since it implies recognizing words accurately and simultaneously detecting their meanings. This definition represents the word level of reading, and it refers to the lexical level of reading comprehension (Groen et al., 2019). Reading comprehension includes other levels, such as inferential, critical, and applied. Literal comprehension is the interpretation of the information mentioned in a text. Inferential and applied are referred to as deep comprehension levels (King, 2007). Thus, reading comprehension has hierarchical levels (Tennent, 2015). They are significant for the process of reading, as demonstrated by previous studies. For example, Pang (2008) affirmed that students' linguistic knowledge of vocabularies, discourse markers, sentence structures were important to aid comprehension of the text. The study by Nassaji (2003) also concluded that lower-level word recognition and vocabulary knowledge affected students' reading comprehension. Therefore, it is recommended to include them within reading classes.

There are certain features for language classes that aim at achieving fluency and comprehension. They characterize the type of activities, the interventions, and techniques used in reading classes. First, to achieve fluency in language classrooms, activities include real-life situations. Second, the content of the subject matter or the topic of discourse should be determined by the learner (Brumfit, 2000). Third, the accuracy of comprehension also should combine fluency instruction (Fillmore, 2000). Finally, the techniques and strategies used to improve reading fluency and comprehension could integrate listening and reading. They include repeated reading, continuous reading, listening while reading, loud reading, and whole-class choral reading (Paige, 2012).

2.2 Repeated Reading (RR) and Listening While-Reading (LWR)

RR is "a skill-based technique in which students are asked to read a text multiple times" (Özbek & Girli, 2017, p. 758). RR offers the opportunity for learners to enhance their reading fluency. For instance, students are trained to read in a faster time which in turn improves their speed of reading. With feedback and practice, they can read accurately for better comprehension. Moreover, there are some techniques used to carry out RR. They are individual RR, reader's theatre, and reciprocal repeated reading (Cohen, 2011).

Previous studies pinpointed that RR improved students' fluency and comprehension (Chang & Millett, 2013). Ates (2013) and Sukhram and Monda-Amaya (2017) pointed out that oral RR with corrective and remedial feedback enhanced learners' comprehension and fluency. Swain, Leader-Janssen, & Conley (2017) concluded that frequent reading accompanied by listening script preview developed learners' oral reading fluency.

Studies, also, integrated technology in RR instructions and activities, for example, the study by Hartness (2011) recommended using electronic RR to develop learners' reading fluency. Papadima-Sophocleous and Charalambous (2014) implemented iPod touch-supported RR activities to enhance students' fluency. Results concluded that RR developed the prosodic features of fluency. Bennett et al. (2017) proved that digital RR instruction affects reading fluency and comprehension. Wood et al. (2018) stated that TTS may assist students' reading comprehension.

Additionally, fluency is developed through assisted reading or listening while reading (Rasinski & Hoffman, 2003). The constructs listening-while-reading (LWR) and reading-while-listening (RWL) resulted from the well-known relationship between listening and reading. In the LWR technique, students read silently while simultaneously listening to a reading passage. The passage may be read by a fluent reader or through a recorded mean (Rochdi & Eppard, 2017).

Studies investigated the effectiveness of LWR and RR on learner's reading fluency (e.g., Blonder et al., 2019; Eppard, Baroudi, & Rochdi, 2020; Friedland, Gilman, Johnson, & Demeke, 2017; Hawkins, Marsicano, Schmitt, McCallum, Musti-Rao, 2015; Winn et al., 2006). Results affirmed that RR and LWR are two significant techniques that develop learners' reading fluency and comprehension. This research provides suggestions for using them with TTS apps in higher education.

2.3 Reading and Text to Speech Apps (TTS)

With the new voice cutting edge technology, more software and apps are designed to enhance learning of foreign languages. Text to speech software and applications became a potential option in language learning classes (Bione, & Cardoso, 2020). In the reading context, previous studies such as Rochdi and Eppard (2017) and Özbek and Girli (2017) revealed that mobile Apps could be utilized to motivate students to read, engage in activities, and improve comprehension and fluency. Other studies showed that mobile helped to promote oral reading production of language learners (e.g., Marques et al., 2017; Pellerin, 2014). Recently, TTS applications and software have facilitated learners' reading fluency. For example, Bone and Bouck (2017) recommended the use of TTS to assist students' reading skills. Redford (2019) pinpointed that TTS is an assistive tool that helped learners develop reading independently. Wood et al. (2018) concluded that TTS Apps improve students' reading comprehension. Young et al. (2019) indicated that TTS improved students' reading fluency and comprehension. Accordingly, TTS Apps supports learners' improvement in reading fluency, comprehension, and motivation.

Statement of the problem

Therefore, this study investigates the effectiveness of using RR and LWR techniques based on some TTS Apps in developing students' fluency and comprehension. It was hypothesized that:

1- "There was a statistically significant difference among participants score means in the pre and post measurements of the overall reading fluency in favor of the latter."

2- "There was a statistically significant difference among participants' score means in the pre and post measurements of the reading fluency sub-skills in favor of the latter".

3- "There was a statistically significant difference among participants' score means in the pre and post measurements of the overall reading comprehension in favor of the latter."

4- "There was a statistically significant difference among the mean scores of the pre- and post-assessment of the participants in each sub-skill of EFL reading comprehension in favor of the latter."

3. Methods

3.1 Research Design

The study implemented the one-group pretest-posttest design since all the participants were enrolled at one section.

3.2 Participants

Participants were female students (n= 26) enrolled at a reading course, English language department at Zulfi College of Education, Majmaah University, KSA. Their average age was 20 years old. Students were in level 4 who studied a previous beginning course in reading comprehension.

3.3 Instruments

3.3.1 An Oral Reading Fluency Test (ORFT)

The test aims to assess students' oral reading fluency sub-skills (e.g., reading accuracy, rate, and prosody). Students are asked to read a passage loudly and record their reading via Voice Memos or Voice Recorder on their Mobile Phones. For calculating accuracy, the sum of words read accurately is divided by total words read. For measuring the reading rate, the division of the passage word number over the reading time is calculated. The test content is adapted from Ackert and Lee (2005).

3.3.2 An Oral Reading Fluency Scale

The scale assesses four aspects of reading prosody (e.g., expression and volume, phrasing, smoothness, and pace). Students could receive between 1 and 4 points on each of these sections, thus the total score ranges from 4 to 16. The scale is adapted from Rasinski (2004). This scale suited the study as it was intended to identify level and description of performance of non-native students.

3.3.3 A Reading Comprehension Test (RCT)

The test aims to measure two levels of reading comprehension; lexical, and literal. The test consists of two questions. The first one consists of five multiple-choice and five true or false questions to assess the literal comprehension level. The second question assesses lexical reading through a matching exercise to match each vocabulary with its appropriate meaning. For each correct answer, students are awarded one mark, so the total score of the test is 20 marks. The reading passage is also adapted from Ackert and Lee. (2005).

3.3.4 Validity and Reliability

A group of specialties in EFL approved the validity of the tests. The inter-rater reliability method was used to estimate the reliability of the ORFT. The Pearson correlation result between the two raters was (r=0.75, p< 0.01). The test-retest method was used to check the reliability of the RCT. The person correlation coefficient between the two applications was (r= .78), which means that the test is reliable.

3.4 The Procedures

3.4.1 The Treatment

The duration of the present study was 12 weeks during the first semester of the academic year 2019-2020. The pre-tests were applied in week 1, and the reading sessions lasted for ten weeks. The introductory session was conducted in the second week. During that session, students were shown a tutorial video to learn how to use a TTS application, namely the Speechify APP. Each session followed seven stages to apply the RR and LWR instruction. Students performed the first four stages independently. The fifth and sixth stages were done individually along with their teacher, but the last one was managed as an assignment. The last week of the treatment was assigned to the post-test. The objectives of the treatment were to develop learners' oral reading fluency, rate and speed of reading, prosody, aspects of reading accuracy, and literal and lexical reading comprehension.

3.4.2 The Study Material

The reading activities and passages are from the students' textbook" Reading and vocabulary development 3: Facts and figures". The passages are in an expository style, and they are authentic texts. The topics covered are why do people laugh? Why is the sea salty? The camel, the date palm, Rice, Orange, The coffee plant, Work hours, Salaries, and the Dolphin.

The count of words in each passage ranges from 170 to 240. The passages are followed by comprehension questions that focus only on literal and lexical levels of comprehension due to students' level. The other high levels of reading comprehension, such as inferential, creative, applied, and critical, were beyond the context of the study, and they were not tackled through the reading intervention.

3.4.2.1 Speechify APP

Speechify is a TTS application that works for Mobile, Desktop, and Chrome. This app synchronizes with the iPhone and Android. Users can import texts or PDFs, scan a book or a text, and download from Google Drive or any clouds. The App provides natural human voices generated through cutting-edge Artificial intelligence technology. Students can have any text read aloud. They can also create their audiobooks. (https://www.getspeechify.com)

3.4.3 Reading Intervention Stages

3.4.3.1 Get Ready

During this stage, students use their mobiles to scan the reading passage on the Speechify App.

3.4.3.2 Listen and Read Along

Students use the mobile app to listen for two times to the passage while following along on the printed copy of the text.

3.4.3.3 Answer Comprehension Questions (1st time)

Students answer comprehension questions after listening and reading the passage.

3.4.3.4 Read Aloud

Students read aloud the reading passages while listening, and then they repeat the same procedure.

3.4.3.5 Read and Get Feedback

During this stage, students read individually in front of their teacher to get corrective feedback.

3.4.3.6 Answer the Comprehension Questions

Students answer comprehension questions for the second time. Then the teacher checks their answers

3.4.3.7 Listen, Read, and Record

This stage is conducted as an assignment after each session. Students listen to the same passage at home two times and then read and record their best reading using the Voice Memos or Voice Recorder APP or WhatsApp. After that, they send and share the recording with their teacher. The teacher records comments and sends them to each student to give them corrective feedback again.

4. Results

Paired-sample t-tests were performed to test the hypotheses of the study. Cohen's effect size (d) was also conducted to show the magnitude of change between the pre and posttests.

4.1 The Results of the Pre-Post Test of Reading Fluency

Table 1. T-test results between the means of reading fluency post-test and the pre-test

Test	n	M	SD	T	df	Sig*.
Pre-test	26	203.5	49.9	3.4	25	.002
Post-test	26	223.6	50.3			

*P < 0.05

As shown in Table 1, the mean of the post-test (*M*= 223.6) is higher than that of the pre-test *(M*=203.5) where (*t*= 3.4, P < 0.05). Thus, the first hypothesis was confirmed. The value of Cohen's effect size (*d* = .67) indicated a moderate to high practical significance.

3.2 The Results of the Pre-Post Test of Each Sub-Skill of Reading Fluency

Table 2. The results of the pre-post test of reading fluency sub-skills

Reading fluency components	Pre-test		Post-test		t	df	Sig.*
	M	SD	M	SD			
reading accuracy	86.5	25.6	99.5	16.9	2.3	25	0.029
reading rate	107.7	42.7	113.6	44.7	2.2	25	0.035
3. **prosody**	9.2	3.5	10.4	3.8	4.9	25	0.00

*P < 0.05

Table 2 results show that the posttest means for each reading fluency sub-skill *(M*= 99.5, 113.6, 10.4) are higher than those of the pre-test (*M*= 86.5, 107.7, 9.2) and (*t* = 2.4, 2.2, 4.9, p < 0.05). Thus, the second hypothesis was validated. Cohen's effect size values for the sub-skills are as follows (*d* =0.45, 0.43 and, 0.9) suggested a moderate effect size for accuracy and rate, but a high significance for prosody.

3.3 Reading Comprehension Pre-Post Test Results

Table 3. Paired samples t-tests results between the means of the post-test and the pre-test of overall reading comprehension

Test	n	M	SD	t	df	Sig*.
Pre-test	26	9.0	2.5	6.4	25	0.00
Post-test	26	11.3	2.2			

*P < 0.05

As appear in Table 3 results, a difference between the mean of the posttest (*M*=11.3) and that of the pre-test (*M*= 9.0) and (t= 6.4) exists, which is significant at 0.05. Thus, the third hypothesis was verified. Cohen's effect size values for reading comprehension was calculated and found to be (*d* = 1.2) to show a high effect.

3.4 The Pre-Posttest of Reading Comprehension Sub-Skills Results

Table 4. Paired samples t-tests results between the means of the post- post-test and the pre-test in each sub-skill of reading comprehension

	Test	n	M	SD	t	df	Sig*.
Lexical comprehension	Pre-test	26	4.3	1.4		25	0.006
	Post-test	26	5.2	1.6	2.9		
Literal comprehension	Pre-test	26	4.6	1.3		25	0.000
	Post-test	26	6.1	.99	7.0		

*P < 0.05

As Table 4 shows, t-tests results of the reading comprehension sub-skills posttest *(M*= 5.2, SD= 1.6) (*M*= 6.1, SD= *0.99*) are better than those of the pretest (*M*= 4.3, *SD*= 1.4, *t*= 2, 9, *p* < 0.05) (*M*=4.6, *SD*=1.3, *t*= 7.0, p < 0.05) for lexical comprehension and for literal comprehension respectively. Thus, the fourth hypothesis was supported. Moreover, Cohen's effect size values for lexical comprehension is (d= 0.56) to indicate a moderate to high effect size, and it is (d=1.3) for literal comprehension as an indication of a high practical significant effect.

4. Discussion

Reading fluency and reading comprehension are two significant skills required by foreign language learners. Previous studies have investigated the relationship between them (e.g., Kim, Wagner, & Foster, 2011). Other studies tried to examine how to develop them, such as Ates (2013) and Sukhram and Monda-Amaya (2017). The current study focused on investigating the effectiveness of using RR and LWR via mobile applications in enhancing reading fluency and comprehension. Data analysis showed positive results toward such effectiveness. The results of the study are consistent with Chang and Millett (2013), who concluded timed repeated reading effectiveness in learners' fluency and comprehension.

The first main result indicated students' development in fluency. The results of Table 1 revealed that students' overall reading fluency improved. The effect size also illustrated a high practical significance of the treatment. It was proposed that influent readers read word-by-word slowly and inaccurately than fluent readers. The present study found that RR encouraged the students to practice reading, which consequently developed their rate, accuracy, and prosodic features as pinpointed by Cohen (2011), Cott (2017), and Hawkins et al. (2015).

As shown in Table 2, the sub-skills of fluency were also improved. For reading accuracy**,** students showed gradual improvement throughout the sessions. The number of words reads correctly increased, but the less frequent words or unfamiliar ones affected their reading accuracy. Therefore, a moderate effect size was indicated by Cohen's d. Moreover, giving the students corrective feedback within RR stages attributed to the enhancement of accuracy in reading. The same result was also reported by Ates (2013), who found improvement in students' word recognition and accuracy. Hawkins et al. (2015) also suggested giving the students' error correction and feedback and considering the time in RR and LWR interventions. The same procedure was proven to be effective in Parenti and Chen (2015), who provided feedback after students listened to repeated reading using the Voice Thread application. Moreover, those who read accurately showed better performance in their reading comprehension questions. This result is supported by Khor et al. (2014).

Comparing the pre and the post results of the number of correctly read words per minute showed that reading rate also developed. Listening three or four times for each text along with repeated readings during the sessions resulted

in maintaining the right pronunciations of words and consequently improved reading rate. Their performance during the posttest showed appropriate speed. This result is in line with Chang and Millett (2013). In their study, they compared a RR and a non-repeated reading group. They found that the RR group showed superior performance in reading rate than the other group.

Using RR LWR tends to have effective results. The same result was affirmed by Rochdi and Eppard (2017), who used a reading app to enhance students' reading fluency and rate.

As for prosody, before the treatment and during the pre-test, it was noticed that most students made frequent pauses and repetitions. Results of the posttest indicated development in aspects of prosody. Due to the repeated reading training, students started reading smoothly with few breaks. Students' readings during the posttest showed that most of them were enthusiastic and reading with more confidence, which made the text sounds like natural language. Students also who tended to read word by word showed better performance with the assistance of RR and LWR. A similar result was reported by Papadima-Sophocleous and Charalambous (2014).

Although prosody improved, some students had improper intonation and sentence stress. This problem may be because these phonological aspects were not emphasized in classes. These aspects also hindered their reading fluency and comprehension; some of them still read with a mixture of a fast and slow pace. Previous studies showed that aspects of prosody and fluency affect reading comprehension (Lubua, 2016). The present study results agree with Groen et al. (2019), who concluded that poor perception and production of prosody obstructed reading comprehension.

It can be said that using TTS Apps also facilitated the application of the RR and LWR techniques and helped in improving students' reading. It motivated the students through a positive and encouraging learning environment. That is to say, using the Speechify App was preferred by the study sample. Previous studies affirmed a positive influence on reading achievements of students using such type of applications (Bennett et al., 2017; Hartness, 2011; Keezhatta & Omar, 2019; Marques et al., 2017; Özbek & Girli, 2017). Other researchers concluded that TTS Apps affects positively students' reading fluency (e.g., Bone & Bouck, 2017; Redford, 2019; & Young et al. 2019). Wood et al. (2018) revealed that TTS APPs and read-aloud tools are moderators that support students' reading comprehension. Thus, all these studies pointed to the fact that TTS Apps are effective and applicable in reading classes. Besides, Text to Speech and oral reading mobile applications are implemented to assist reading fluency. The present study is in line with them in that conclusion.

Results affirmed that student's reading comprehension were also improved. Training the students, on repeated oral reading and LWR, helped them understand the reading passages. The current study agrees with the previous studies in that oral reading is a concept in reading comprehension development. For instance, the study by Kim et al. (2011) affirmed that one of the predictors of comprehension is fluency. The results by Barber et al. (2018), Chang and Millett (2013), and Cott (2017) also proved that RR enhanced reading comprehension. Like the results by Lubua (2016), the current study pinpointed that using LWR affected reading comprehension positively. A similar result was found in the line of researches by (Kim & Wagner, 2011 & 2015). On the contrary, the study by Eppard et al. (2020) indicated that LWR improved students' reading fluency, accuracy, and rate but it did not develop reading comprehension.

As the results indicate, the present study merged RR and LWR interventions and did not examine the potential differences between both of them on reading comprehension or fluency. It agrees with Thoermer and Williams (2012) in that LWR and RR through digital texts and Apps promoted oral reading fluency. Other studies compared the effectiveness of either RR or LWR on reading comprehension accuracy and rate. For instance, the study by Hwkins et al. (2015) revealed that RR and LWR affected reading fluency and accuracy similarly. Rochdi and Eppard (2017) did not find significant differences between RR and LWR on students' reading abilities. On the contrary, Blonder et al. (2019) reported that none of the interventions improved comprehension; however, LWR improved comprehension rate. They concluded that LWR is more effective than RR

5. Conclusions, Recommendations, and Suggestions

According to the findings of the study, using RR and LWR resulted in improving students' oral reading fluency, accuracy, and comprehension. Integrating TTS applications enhanced the treatment positively and facilitated the use of RR and LWR intervention. Therefore, it is recommended to use technology and new mobile applications within reading classes. TTS Apps such as the Speechify app is a promising tool that can be integrated into reading instruction and interventions to enhance reading fluency and comprehension via RR and LWR activities.

The present study results are limited; it is applied with female learners. It may be replicated with male students, to

study gender differences. It can be conducted with other samples and levels of learners. Additionally, the current study investigated lexical and literal levels of reading comprehension. Accordingly, additional studies can examine other higher levels of reading comprehension, such as inferential, critical, and applied. Studies may also compare the effectiveness of RR vs. LWR on EFL students' reading comprehension and fluency. Suggested studies can try to investigate students' motivation, attitude, or perception towards using RR and LWR in reading classes. Other studies, can examine students' improvement in speaking skills, through the use of RR or LWR activities. Further, studies can examine students or teachers' perception towards TTS Apps.

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