

Effects of Listening While Reading (LWR) on Swahili Reading Fluency and Comprehension

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Abstract

A number of studies have examined the contribution of technology in teaching such languages as English, French, and Spanish, among many others. Contrarily, most LCTL's, have received very little attention. This study investigates if listening while reading (LWR) may expedite Swahili reading fluency and comprehension. The study employed the iBook Author tool to create weekly mediated and interactive reading texts, with comprehension exercises, which were eventually used to collect descriptive and qualitative data from four Elementary Swahili students. Participants participated in a seven week reading program, which provided them with some kind of directed self-learning, and met with the instructor for at least 30 minutes every week for observation and more reading activities. The teacher recorded their reading scores, and a number of themes on how LWR influenced reading fluency and comprehension are discussed here. It shows that participants have a positive attitude towards LWR and they suggest it for all the reading classes.

Keywords: Listening while reading (LWR); Reading while listening (RWL); Reading comprehension; Reading fluency; Computer Assisted Language Learning (CALL)

1. Introduction

A number of studies have been done to examine the contribution of technology in teaching such languages as English, French, and Spanish among many others. Listening and reading, the language receptive skills, have been intensively researched (see Lund, 1991; Rasinski, 1990; Rubin, Hafer, & Arata, 2000; Sticht & James, 1984; Hirai, 1999), and a number of studies have particularly looked on how factors such as the background knowledge of the topic/content, vocabulary knowledge, the amount of exposure to spoken and written language, may affect learners' fluency and comprehension in reading and listening. Other studies have investigated the use of technology in combining these two skills, and whether the combination alters fluency and comprehension of these skills (see Chang, 2009; Chang, 2011; Woodall, 2010).

The present study explores possible effects of simultaneous listening and reading on Swahili learners' reading and comprehension fluency, and it describes learner's perspective about the use of that approach in learning reading. Although Swahili has a one-to-one correspondence between spelling and pronunciation, its word stress, intonation, phrasing, and other important reading aspects are still problematic to most non-Bantu students, and they have posed many problems in developing their reading fluency and their comprehension of the written text. The demand of Swahili, as an iconic African language, has been overtly increasing all over the world, and this calls for rigorous research on technology integration in its classroom instructions. This pilot study is very substantial in showing how the use of aural-written texts in iBooks may motivate Swahili students to read, and how those iBooks may give students personal support when they stumble in their reading.

2. Literature Review

2.1 The Relationship Between Listening and Reading

A number of studies have examined how listening and reading relate to and differ from each other (see Chang, 2009; Chang, 2011; Lund, 1991; Rasinski, 1990; Rubin, Hafer, & Arata, 2000; Sticht & James, 1984; Woodall, 2010). These studies have provided considerable evidence to support that reading and listening processes are closely related to each other. Woodall (2010), for instance, asserted that although listening and reading may easily seem to be quite distinct skills because of their differences in source and context, they still share a similar problem-solving task, including decoding the meaning from language symbols – visual symbols in reading, and auditory symbols in listening.

Lundi (1991) compared L2 listening and reading comprehension by dividing L2 German learners into two groups. He asked one of the groups to read a German text, and the other group to listen to the same text. He then found that the modalities of reading and listening seem to encourage learners to use different strategies in comprehension of written and spoken texts, and that the different strategies they apply in decoding a written text and a spoken text are based on the symbols – letters in reading and speech sounds in listening. Similarly, Woodall (2010) studied 137 basic-level English learners. He divided students into two groups, a control group (n=68) and an experimental group (n=69). Students in the experimental group used the technique of reading while listening to an audio book of the same text, while those in the control group read the same text with no audio. He constructed his study in a similar way as Bradley and Foster (1987), who asserted that the similarities between these two contextually different language skills are observed in respect to auditory and visual word recognition processes (encoding), and between comprehension and production processes (decoding) (see also Zwitserlood, 1994).

All these studies suggested an important idea that word recognition and production processes, in reading and listening, work in a very similar way. Segalowitz, Segalowitz, and Wood (1998)

pointed out that, “word recognition may involve a pattern analysis of the visual stimulus, phonological decoding, and lexical search on the basis of either the visual or phonological representations or both” (p. 54). This whole idea can be summarized below (Figure 1) in lexical processing model of de Bot, Paribakht, and Wesche (1997). This lexical processing model shows how the two oral and written modalities are similarly processed.

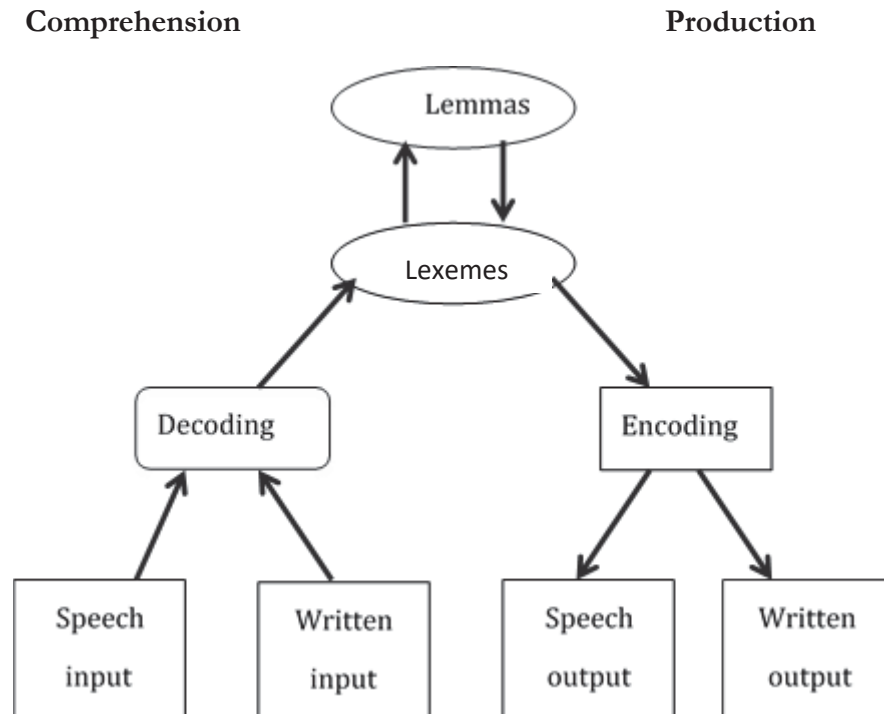


Figure 1: Lexical comprehension/production for oral and written modalities. Source: de Bot, Paribakht, and Wesche (1997)

Both this model and all the previously mentioned studies put listening and reading skills together. They provide a model for

learning how the two skills may affect each other, and how the two can be pedagogically used to facilitate one another.

2.2 Effects of Listening While Reading (LWR) on Fluency and Comprehension

Basing on the similarities observed in listening and reading, each of these receptive skills – listening and reading – may be significant in developing comprehension ability and fluency of the other, if they are simultaneously used under significant pedagogical practices. To study their significant effects on each other – listening on reading and reading on listening respectively – terms listening while reading (LWR) and reading while listening (RWL) are commonly used. The two concepts, LWR and RWL, have two different pedagogical implications. Chang (2011) described that reading is the ultimate goal in LWR. He described that reading, in this context, is assisted through listening to the oral rendition of the similar written text. On the other hand, he pointed out that listening is the ultimate goal in the RWL, and reading in that practice serves as a support in the listening process (see also Chang, 2009; Woodall 2010). What seems to be more important in Chang (2009), Chang (2011) and Woodall (2010) is that despite the fact that goals in LWR and RWL are different, both LWR and RWL practices involve simultaneous reading and listening.

Different studies on listening while reading, conducted in different language classrooms, have shown positive findings. McMahon (1983) and Mareschal (2007) described that simultaneous reading and listening may be significantly effective to the lower proficiency learners (see also Chang, 2009). This appears also in Rasinski's (1990) finding that listening while reading expedited the reading fluency of L1 third-grade students. All these may be influenced by the idea that simultaneous reading and listening keeps learners away from word-by-word reading style, and helps learners to develop sentential reading skills (Hill, 2001), which are very significant in the comprehension process.

Several other studies have looked at listening while reading in middle school students (Richardson & Carleton, 1996), and university

students (Taguchi, Takayasu-Maass, & Gorsuch, 2004; Woodall, 2010). In his study, Hill (2001) found that students who read while listening to the same text outperformed those who read without simultaneously listening to the audio recording of the same text. Apart from learners who practiced simultaneous reading and listening outscoring those who practiced traditional reading, students' perspective on LWR was very positive. Students' responses on the questionnaire show that a large majority of the students felt that the LWR experience helped their listening and comprehension skills.

Richardson and Carleton (1996), using a 19-year-old Cuban refugee English learner in their study on read-aloud approach, found that using the read-aloud approach is especially suitable because the ESL learner benefits from listening to the English language while reading along. One of the benefits the language learner may get in simultaneous reading and listening is that it promotes concentration and it makes aural input more interesting with sound effects (Chang, 2009).

There are other studies, however, which have shown that simultaneous reading and listening may just be as effective as extensive reading. Taguchi, Takayasu-Maass, and Gorsuch (2004) studied university-level L1 Japanese EFL learners. In a 17-week EFL course, they compared repeated reading used in conjunction with listening of the same text, and extensive reading without listening. After the 17 weeks, they found that the approach of repeated reading with simultaneous listening to the same text did not yield any notable fluency and comprehension differences from the extensive reading approach. However, at the end of their study, Taguchi, Takayasu-Maass, and Gorsuch realized that the tools they used to collect data, their pretest and posttest comprehension scores particularly, might have wrongly dictated the same result because their tools could not be verified as being equal measures for their participants.

Although many previous studies have examined the significance of listening while reading, most of these previous studies targeted the commonly taught languages only, while leaving the less commonly taught languages (LCTLs), African languages in particular, aside. This gives room for furthering the present study. This study

seeks to contribute to the body of knowledge by investigating the extent to which listening while reading may expedite Swahili reading fluency and comprehension. It also looks on students' perceptions towards listening while reading, as compared to the read-only approach. This study will seek to answer the following questions:

1. Does listening while reading (LWR) affect Swahili reading fluency (speed)?
2. Does listening while reading (LWR) affect Swahili reading comprehension?
3. What are learners' perspectives on listening while reading (LWR) in relation to reading only?

3. Methods

3.1 Research Design

The present study borrows from studies by Woodall (2010), Chang (2009) and Chang (2011). While Woodall (2011) investigated how LWR can help learners read more efficiently, both Chang (2009) and Chang (2011) examined the effect of RWL on listening fluency and vocabulary gain. They all used two groups of participants: the experimental group, which used simultaneous listening and reading, and the control group, which practiced traditional reading/listening instructions. The present study, which the author considers to be a pilot study, collected the data from students who were in a normal classroom setting.

3.2 Participants

Participants in this study were four female Swahili learners from Ohio University, USA. All the four participants were students in a Swahili level one course (second semester) at the time of this study, and they were enrolled in different programs on campus. Although students in this level had some knowledge of Swahili grammar, they were still novice readers since reading and writing was not a major focus in their first semester course. Participants were divided into two groups: a group that used the simultaneous reading

and listening approach, and a group, which used the traditional reading approach (without audio renditions of the texts). Although the number of participants in this preliminary study was low, the author called these two groups the listening while reading (LWR) group and the read-only group, respectively.

3.4 Materials

Basically, data on participants reading fluency and comprehension was collected using reading texts. These texts were developed to measure and collect data on students' reading fluency and comprehension, and they were given both on iPads (within an iBook) and printed texts. With the exception of the last two weeks, audio renditions were removed from iBooks that were given to the control group. The reason behind the issuance of the texts both in iBooks and print was to give participants an opportunity to choose which way they prefer for reading the text. The data on learners' fluency and comprehension was tabulated in special charts (see Appendix A and Appendix B). Data on their perspectives toward LWR examined participants attitude on the two approaches used: simultaneous listening and reading, and traditional reading (read-only).

3.5 Procedures

Participants individually met with the researcher once a week for a duration of 30 minutes to one hour, in seven consecutive weeks, for their reading sessions and comprehension exercises. For the first five weeks, the LWR group was provided with aural-written texts (in iBooks), one text each week. They were asked to read the texts while listening to audio renditions of the same text, and then attempt comprehension exercises provided after each text. In the last two weeks, they were provided with texts without audio renditions, and they were asked to perform reading activities and exercises as they used to do previously. The read-only group, on the other hand, adopted the traditional reading practices for the first five weeks, and simultaneous listening and reading for the last two weeks. In the first five weeks, they were provided with texts, but they were not provided with their audio renditions. In the last two weeks, they were given aural-written texts.

Providing each group with texts in two different styles (written texts and aural-written texts) was very significant in getting their attitude towards LWR as compared to traditional reading. The difference in duration in which each of the approaches was used for each group (5 weeks vs. 2 weeks) was significant in recording their improvement in fluency and comprehension, based on the reading approach applied. The following sections give detailed procedures used in recording participants' performance.

3.5.1 Reading Fluency

For measuring participants' fluency, texts different from the ones they used for weekly readings were provided during weekly meetings with the researcher. Using different texts in this part of the study was very important in order to avoid the effect of repeated reading that would have occurred if students used texts that they have been reading for the whole week at home (see Raskey, 2011).

The main focus of reading fluency was on reading speed, and this was determined by the number of correct words that a participant reads per minute. The data was tabulated weekly and the following information was recorded in the weekly reading fluency assessment chart (see Appendix A): total words read (TWR), errors (E), words correct (WC), time taken (T) and words correct per minute (WCPM)¹. A stopwatch was used to record the time that participants used to read texts. Apart from reading speed, four other important reading fluency variables were also recorded. These variables are accuracy, punctuation/intonation, phrasing, and smoothness of reading (see Appendix A for scoring rubric, as adapted from Rigby, 2004). An overall (average) fluency score² based on the average score of the four variables was calculated and recorded.

¹ Words Count Per Minute (WCPM) = Words Correct (WC) ÷ Time Taken in Minutes (M)

Words Correct (WC) = Total Words Read (TWR) – Errors (E)

² Overall Fluency Score = (Accuracy + Punctuation + Phrasing + Smoothness) ÷ 4

3.5.2 Comprehension

Comprehension was measured using comprehension exercises that were provided at the end of each text. Exercises were designed to test participants' understanding of details, main ideas in texts, and vocabulary in context. Apart from that, there were bi-weekly reading quizzes, and these quizzes were given to each group accordingly. With exception of the last two weeks, participants in the LWR group were provided with aural-written texts in these biweekly quizzes, while those in the read-only group were given regular reading quizzes. Scores for the quizzes were tabulated on the comprehension assessment sheet (see Appendix B).

3.5.3 Attitude

Obtaining information about their attitudes towards LWR, a post-study survey was provided. The post-study survey had 10 Likert-scale items about their general reading experience and their perspective on LWR versus traditional reading. They were asked to show their level of agreement with statements concerning their reading experience. The survey ended with an open-ended question, in which each participant wrote her general views on the project, and the reading approaches in particular.

4. Results and Discussion

4.1 Fluency and Comprehension

As described earlier, the sample size used in this study is too small to draw any statistical conclusions, especially on the statistical relationship between the variables. Because of that, although fluency and comprehension scores for individual students in their respective groups will be provided in this section, discussion will mainly be based on how participants' scores concur with the researcher's observation of participants' improvement and participants' responses on the post-study questionnaire. This section, therefore, will present and discuss several themes that emerge from the study.

4.1.1 Fluency

As Table 1 and Table 2 show, all participants had more or less similar reading fluencies at the beginning of the study (see Week 0). Their fluencies, however, started to change drastically from Week 3 through Week 7. Similar to Woodall's (2010) findings, there appears to be a notable improvement in participants' word count per minute and their average scores from one week to another, in both groups and individuals.

Table 1: *Fluency Scores (%) for the Read-only Group*

Week	<u>Participant 1</u>		<u>Participant 2</u>	
	WCPM	Ave. Score	WCPM	Ave. Score
0	55.6	48.5	60	56.25
1	57.5	50	63.5	56.25
2	59	50	63	62.5
3	65.5	56.25	65	62.5
4	68	62.5	69	68.75
5	69.5	56.25	71	62.5
6	73.6	62.75	74.8	68.75
7	82.6	62.75	86	75

Table 2: Fluency Scores for the LWR Group

Week	<u>Participant 1</u>		<u>Participant 2</u>	
	WCPM	Ave. Score	CPM	Ave. Score
0	56	56.25	57	56.25
1	58	56.25	62.5	62.5
2	61.2	62.5	63	62.5
3	77	68.75	81	75
4	77.5	75	81.5	81.25
5	83	75	89	81.25
6	97	81.25	101	93.75
7	100	87.5	105	93.75

The difference between participants' fluency scores across the groups, however, suggests that there was a possible LWR influence on reading fluency. As individual participant scores show, participants in the LWR group had a better improvement in their reading fluency than those in the reading-only group. In the beginning of the study, for instance, WCPM and fluency scores for

Participant 1 and 2 of the LWR group were less than that of Participant 2 of the reading-only group. By the end of the study, however, all the two LWR participants outperformed Participant 2 of the reading-only group in both WCPM and fluency scores. Observation and assessment on fluency variables recorded by the researcher (see Appendix A) showed that at the end of the study participants in the LWR group exhibited a reading that was less laborious, smoother, well-phrased, attentive to punctuation signals, free from false start, and consistent in reading pace. This suggests that the LWR possibly induced their fluency development.

4.1.2 Word Pronunciation

On another important observation, LWR helped students to improve their accuracy in individual word pronunciation, stress placement and sound articulations. Participants, in the questionnaire, reported that they liked to use audio renditions for practicing word pronunciations and intonation. This observation is also reflected on participants' responses on the 8th item of the questionnaire, which asked for the extent to which they agreed or disagreed with the statement that LWR improved their pronunciation (see Table 4). Responding to this statement, participants from the LWR group strongly agreed with the statement, while two other participants agreed with it. Responding to the last item of the questionnaire, one participant wrote the following: “I thought the audio was extremely helpful for pronouncing difficult words I had never seen before....”

4.1.3 Reading Speed

Results show that participants had relative improvement in their reading speed from week 0 through week 7. Group-wise, the LWR group exhibited higher improvement in reading speed, which was measured in words correct per minute (WCPM), than their reading-only counterpart. It appeared that improvement in accuracy, punctuation, phrasing, and smoothness led to a noticeable improvement in reading speed. One participant from the LWR group writes “... I was able to read more quickly than if I were just given the text without the audio”. This shows that the reader on iBooks motivated the participants to read faster.

Although the LWR seemed to support improvement in reading speed, one participant from the LWR group reported that the reader in the iBook did not maintain consistent speed, and therefore it made it difficult for her to follow. She asserted that sometimes audio renditions appeared to read at lower pace than hers. She says, "I had a hard time staying at the same pace as the audio. I thought the audio was slow at some points and then was faster at others". However, it should be noted that the measure for reading speed (i.e. WCPM) was affected by number of errors that a reader had in a particular text. More errors resulted in lowering the WCPM score, and therefore difficulties in the text could cause difficulties in participants' reading, which in return would cause the reader in the iBook to appear reading at a higher speed and vice versa.

The present study supports Hill's (2001) assertion that LWR helps in enhancing reading speed because it keeps learners away from a word-by-word reading style. It appeared, in this study, participants in the LWR group had a smoother reading, with more correct phrasing and punctuation than those in the control group. They had minimal false starts and occasional pronunciation errors. They developed necessary skills for sentential reading, and this helped them even to understand texts better than the rest.

4.1.4 Comprehension

Table 3 below shows scores of participants in the LWR and read-only groups in the reading quizzes that were provided on Week 2, Week 4 and Week 6. As the table shows, there is no group-consistency on participants' comprehension scores. Performances varied for both the control group and the LWR group. Participant 2 from the read-only group, for instance, outperformed Participant 1 of the LWR group. Also performances of all participants increased in the last two quizzes. This is also observed in participants responses on the questionnaire item that asked whether LWR helped them to understand the story better or not. In their responses (see Table 4), one participant disagreed, two agreed and one strongly agreed.

Table 3: Participants' Score (%) on the Weekly Quizzes

Week	<u>Read-only Group</u>		<u>LWR Group</u>	
	Participant 1	Participant 2	Participant 1	Participant 2
2	70	75	70	80
4	90	95	90	100
6	98	100	100	100

As Table 3 shows, there was inconsistent improvement in all participants' comprehension scores every time a quiz was taken. This improvement may arguably be used as the evidence of some improvement in comprehension skills. This observation is similar to what Taguchi, Takayasu-Maass, and Gorsuch (2004) found in their study. Inconsistent scores in their study made them conclude that LWR and traditional reading are not any different, and that intensive traditional reading works as effectively as listening while reading.

This project, however, had some limitations like the duration in which all of the approaches were applied, and the number of participants involved in the study. It is also likely that factors like learners' background knowledge of text contents may have dictated these results. Due to all these, this observation may not be sufficient for generalization.

4.2 General Participants' Attitude

The data collected from the questionnaire (see Appendix C) was used in this study in exploring participants' perspectives toward the use of LWR versus read-only approaches in reading. Participants' responses on item 11 of the questionnaire, were also analyzed and discussed. Table 4 below shows participants' responses in 7 selected items, based on their relevance to the comparison between LWR approach and the traditional reading approach.

Table 4: Students Responses on the Questionnaire (selected questions only)

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
I preferred reading on the iBook rather than on print copies	0	0	0	4
I listened while reading	0	0	3	1
LWR helped me understand the story better	0	1	2	1
LWR helped me acquire more vocabulary	0	0	2	2
LWR helped me improve my Swahili pronunciation	0	0	2	2
Project helped me develop my Swahili reading skills	0	0	0	4

4.2.1 LWR vs read-only

As Table 4 above shows, participants' perspectives on LWR are positive. All participants agree that LWR helped them to improve their Swahili pronunciation, vocabulary acquisition, and comprehension. All participants strongly agreed that they preferred reading on the iBooks than on print copies. Participants' responses on item 11 show that they liked the LWR approach, and they recommend it to be used in the entire Swahili course and other language courses. One participant writes, "I really enjoyed using the iBook. I would recommend using the iBook in all of language classes because it helps the learning process move along much faster." In a very similar way, another participant writes, "I never thought there was a way to make reading as enjoyable as I saw in this project. If I get this for my regular Swahili class, I think I will perform far better than I have performed previously. Reading while listening gave me

everything I wanted in reading, and I wish it would be used in all language/reading classes”. The above assertions are from the two participants in the LWR group, and their responses show that they highly recommend this approach to be used in their regular classes.

4.2.2 Personal tutor

LWR worked as participants’ personal tutor. Any time they were stuck, participants were able to use the iBooks for assistance. One of the participants in this project relished assistance the iBooks provided. She says, “if I ever had a question I was able to look it up on the iPad or in my dictionary”. Another student writes “I really enjoyed using the iBook... I found it most useful for me to try to read the passage first on my own, and then listen to the audio by itself. I would then go back and try to read it on my own once more”.

4.2.3 Vocabulary learning

Another benefit obtained from participants’ responses is based on the mobility of devices used. When iPads or other mobile devices are used, learners get easy access to electronic resources available, like online dictionaries. One participant in the present study used her iPad for searching for word meanings or searching for other information related to the reading text. She writes, “... I also enjoyed learning the new vocabulary with reading the passages”.

4.2.4 Self-directedness and Learning preferences

Learners have different learning styles and preferences. During the learning process, they like to involve self-creativity and personalized ways that suit their learning styles and preferences. They therefore appreciate when an approach that offers them freedom of learning is used. This is one of the great things about technology, in accommodating those learning differences and preferences. It is, therefore, advisable trying to build the reading course around technology, train the students on it and let them choose whether they want to use that feature or not. In this study, students had a choice on whether they should read simultaneously with audio renditions or

not, whether they should start reading and play the audio rendition later etc.

In the present study, three participants responded that they did not read along with the text reader. They read the text first, then played the audio. One participant had a complaint that sometimes the reader was even reading at lower pace than hers, and because of that she preferred using audio renditions more for corrections of her reading. She writes, "... I found it most useful for me to try to read the passage first on my own, and then listen to the audio by itself. I would then go back and try to read it on my own once more. I found this most helpful because I had a hard time staying at the same pace as the audio".

Participant's response above suggest one more important thing for teaching reading and other subjects: if a teacher decides to use the LWR approach, it may be a good idea to provide students with portable devices for them to practice on their own, at home or elsewhere, than just using that approach in language labs. Approaches that teachers introduce and implement in class may not necessarily be convenient with all the learners, and it is good to let them choose their own ways of learning. With an extensive use of technology today, learners like to use the same to facilitate their reading. Students can walk around with such portable devices as iPads, iPhones, or smartphones for their reading activities, instead of carrying along a huge textbook and a dictionary. They need to have these devices with them all the time, rather than just using technology in language/computer labs.

5 Summary and Conclusion

Although the sample size in this pilot study was too small, results obtained are worthy of sharing in order to provide a foundation for any future study on whether simultaneous listening and reading affects Swahili reading fluency and comprehension. The combination of participants scores in a series of reading lessons and quizzes, instructor's observation, and students responses on an online

questionnaire makes for some interesting anecdotes for teaching foreign language reading.

Fluency and comprehension scores of all participants in this pilot study changed with time, from week 0 to week 7. Generally, in relation to what they scored during the diagnostic evaluation given at the very beginning of the project, participants in the LWR group improved more significantly than those in the read-only group, especially in their reading speed, accuracy, attention to pronunciation, appropriate phrasing, smoothness in their reading, and intonation (Tables 1 & 2). At the end of the project, LWR participants' reading was more consistent, well phrased, and less laborious than that of the read-only group.

The results also show that participants from both groups had inconsistent scores on bi-weekly quizzes. There were variations in their scores, and one participant from the control group had better scores than one of those in the LWR group (Table 3). Although these results suggest that traditional reading may be as effective as simultaneous reading and listening in comprehension (Taguchi, Takayasu-Maass, & Gorsuch, 2004), it may be important to think about other factors that may affect reading comprehension. These factors may vary from vocabulary knowledge to learners' background knowledge of the text's content.

Participants' perspectives on the two methodologies – simultaneous reading and listening vs traditional reading – are very supportive of the simultaneity in reading and listening. All participants responded that simultaneous reading and listening works better than the traditional reading. They recommend that approach to be used in Swahili and other language classes.

Overall, results of the present pilot study support the idea that LWR may help Swahili learners to develop their reading skills, reading fluency particularly. Although there were no vocabulary acquisition measures, participants' responses to the questionnaire (see table 4) show that LWR helped them to learn more vocabulary, which is the key to reading comprehension. As many language classes embrace technology in delivering content, it may be advisable for the

less commonly taught languages, African languages in particular, to include the LWR approach in their reading classes. Students may be more motivated, and in fact, their performance may rise.

This study, however, had some limitations. The major limitation for this study was insufficient time to collect more data from students. The data for this study was collected during weekly 30 minute meetings with students, and that seems to be not enough for a case study that would need a time equivalent to a semester-long course. Another limitation was that the sample size in this study was very small. Since participants were volunteer students, only four students participated, and only female, and this may be considered as a limitation due to the fact that gender is an important variable in most language studies. Future studies in this area may need to consider these limitations and replicate it with a sufficient number of participants from both genders. Also, if anyone needs to replicate this study, more qualitative data on participants' fluency and comprehension may provide more information about this topic.

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Appendix A

Reading Fluency Assessment

Name: Group Week

Total Word Read (TWR)..... Errors (E)

Words Correct (WC) Time (T)

Words Correct per Minute (WCPM).....

Fluency Score (%)	Fluency Area			
	Accuracy	Attention to Punctuation	Appropriate Phrasing	Smooth Reading
25	Frequent errors, repetitions, false starts, miscues, mispronunciations	No attention to punctuation signals for intonation or stress	Little or no sense of phrase boundaries	Laborious reading pace; very slow and hesitant reading
50	Some errors, repetitions, false starts, miscues, mispronunciations	Some attention to punctuation signals for intonation or stress	Choppy reading with two and three word chunks that may not correspond to phrases	Moderate slow reading pace

75	Occasional errors with word recognition or pronunciation	intonation or stress Moderate attention to punctuations signals for	some misplaced pauses for breath Moderate recognition of proper phrasing with	Mixed fast and slow reading pace
100	Accurate word recognition and pronunciations	Correct intonation and stress based on punctuation	Generally well phrased with correct pauses for breath	Consistent reading pace
Overall Fluency Score (Average)				

Adapted from Rigby, (2004)

Appendix B**Comprehension Assessment Sheet**

Name: Group

Week	Score	Important Observation
1		
2		
3		
4		
5		
6		
7		
8		

Appendix C

Attitude Survey

Respond to the following statements by showing the degree to which you agree or disagree with them (Completely Agree, Disagree, Agree, Completely Agree). Your responses should be based on your personal experience with the present project.

1. I preferred reading on the iBook rather than on print copies
2. Reading texts was enjoyable
3. I listened to the audio rendition of the text while reading
4. The reader on the audio track reads too fast
5. Listening while reading helped me understand the story better
6. Generally, the language in the reading texts was appropriately simple
7. Listening while reading helped me acquire more vocabulary
8. Listening while reading helped me improve my Swahili pronunciation
9. I understood the questions in the comprehension exercises
10. This project has helped me to develop my Swahili reading skills
11. In the space below, write any comments, recommendations or any other thing concerning the project.