

*Title*

**Reading rate and Comprehension**

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**Abstract:**

Reading fluency is one of the most important signs of language proficiency both for native and foreign language speakers (Grabe,2010; Macalister,2010;Winston, 2010;Hasbrouck,2008; Rasinski,2004; Oakley ,2003; Waldman 1985; Cited in :Sayenko,2010, Introduction Para 1).

This paper is in the area of reading fluency and tries to investigate the relationship between reading rate or speed and reading comprehension. Many studies have shown that increasing the reading rate will improve reading comprehension (e.g.; Quinn and Nation, 1974; Bell, 2001; Chung and Nation, 2006; Iwahori 2008; Macalister, 2010; Chang C-S & Coolege H-W, 2010; Sayenko T, 2011). This paper reviews some findings of the previous researches. Some of the materials as well as measurement scales which have been used in these studies are discussed.

Furthermore some issues that are closely related in the study of the link between reading rate and comprehension are briefly explained. The findings suggest that there is a relationship between reading speed and comprehension, and this relation tend to be positive rather than negative.

Finally some limitations and suggestions for future studies have been prepared.

**Key words:** reading rate, comprehension, course, reading activities, measurement

## **Introduction:**

Reading skill is very important for the general and academic purposes, it is so important that the success in the academic achievement highly depended on it. Thus knowing the techniques and strategies which help the students improve their reading skill is an essential part of any language course. Studies that measure reading speed have been relatively few and far between however, and those that do exist rarely evaluate reading speed in relation to the effect of different classroom methodologies in the teaching of reading (Bell, 2001, p.1). Relatively little research on reading speed and its effect in foreign language environment have been published (Bismoko & Nation , 1974; Chung & Nation, 2006; Cramer, 1975; West,1941;cited in Macalister,2008a ) , and I am aware of only one study on the effect of speed reading course in a second language learning as opposed to a foreign language learning environment (Macalister,2008a, p.23-33).

This paper has been carried out to examine the relationship between reading rate or speed and reading comprehension. While it is generally argued that the two are closely related (Broughton et al 1978;Nuttall op cit ;Champeau de Lopez 1993) , the nature of the link between them has been the focus of an ongoing debate lasting more than half a century (Bell, 2001, Background studies Para 3).

Lots of questions can be developed when studying such kind of relation. Some of them can be: what techniques or strategies can be applied to improve reading speed? , what about the comprehension, is there any significant relationship between reading speed and comprehension? What is the optimal reading speed for L1 and L2? These are some questions that this study tries to answer.

## **Background studies:**

The five reported studies in the Macalister (2008), which include: Chung & Nation (2006), Macalister (2008a), Bismoko and Nation (1974), Cramer's (1975), Nation & Malarcher (2007), support the use of speed reading programs. But the question remains is that ,whether there is a relationship between increased reading speed on speed reading course texts and reading speed on authentic texts (i.e., texts not written for language learning purposes) (Macalister,2008b,p.107). The study by Macalister (2007) himself, showed that students who do a speed reading course are very likely to increase their reading speed. His research also demonstrated that, students who do a speed reading course tend to show greater gains in reading speed than those who do not (Macalister, 2008). Another implication of his research was that students who do a speed reading course are significantly better than those who don't do a speed reading course in answering reading comprehension questions. In Another study by Chung and Nation (2006) with a group of 49 Korean university students, after conducting speed reading program, the findings showed that almost all students made some improvement and this improvement for the most of the students was gradual rather than a sudden jump in the speed .However ,this study contained no control group , reading comprehension was assessed but not reported in the study , and some reading was done outside the class which may have affected the study dramatically .Because there may be some variables that was out of control. While the results were compared to Macalister (2008) , Macalister cautiously examined that the improvements in reading rate at the end of speed reading curriculum may be due to the "practice effect" .Practice effect refers to the development of reading rate at the end of the course being the result of students practice in the type of texts in the course . When they quit the practice, their gains in reading rate strays away from the peak. The evidence that some students developments in reading rates were not maintained after

reevaluating at the end of the course, supports Macalister's claim. Another study by Cramer (1975) with Malaysian elementary pupils suggested a great enhancement in reading speed in both their native language and English after reading eight passages in timed reading activities over four weeks. Although reading comprehension ability was assessed, details were not given enough. Despite some flaws in the two studies, they showed that L2 readers can be trained to read faster through speedy reading activity.

The other two researches brought reading fluency training as part of the English proficiency course in an English speaking-country. Cushing-Weigle and Jensen (1996) examined reading rate enhancement in university ESL classes. The reading rate improvement programs included paced reading and timed reading, instruction in reading strategies as well as eye movement techniques. Subjects first had to read 400- word text at an imposed rate which increased by 25 WPM (word per minutes) every week, and then it was followed by 1000 –word timed reading activity at their own time. Cushing-weigle (1990, cited in Chang A.C.S & College H.W 2010), suggested that in the first year her students gained an average of 110 wpm in a 10-week period course without decreasing comprehension. In their Later studies, Cushing –Weigle and Jensen (1996) found that their student gained a significant development in their reading speed and comprehension. In that study, the reading rate of the students increased about 40 wpm, from 158 to 195, but their comprehension scores decreased from 6.59 to 5.80 out of 10. The authors suggested that the decrease in comprehension score was due to the more difficult texts used in the pretests and post tests rather than reading practice effect in the class. In the more recent study conducted by Sayenko T, (2011), he designed an experimental study to examine the relationship between the oral reading speed of Japanese learners of English in their native Language (L1) and in English (L2). The reading tasks used in the included Japanese and English

versions of two paragraphs from the *Book of Tea*, by Okakura Tenshin .The results suggested some correlation between the oral reading speed in their L1 and in the L2. However he suggested that further studies would be require to make any reliable conclusions about the transfer of oral reading automaticity from one language to another (Sayenko T, 2011, Abstract).

These studies had some limitations. The first is that in many of these studies the numbers of subjects which these results were obtained from were small. A second important limitation is that the reliability and validity of the instruments used in these studies, to measure reading speed and comprehension need to be established by correlating them with standard tests of reading comprehension( Bell,2001,Discussion, Para .3). *Hawthorne Effect, Halo Effect, and Subject Expectancy* (Brown, 1998, p.33-34) all had influence over the results of such kind of studies. for example in the study by Bell,(2001) subjects in the extensive group were aware of being investigated in a separate and special reading program , and then it can be said that research led subjects to assist the researcher , and therefore their performance on the tests. The use of only one measure of reading speed transfer was another limitation which can be found for example in the research by Macalister (2010). Furthermore, that study was a quasi-experimental one, which reflected the reality of working with intact classes in an authentic learning context. Consequently , not all variables of interest could be controlled. It would seem, therefore, that there is still more to discover about the contribution of speed reading courses to reading fluency development, and that future studies will continue to build on the work of Bismoko and Nation(1974), Chung and Nation (2006), and others (Macalister,2010, Concluding Remarks Para 3).

In the following are a number of reading activities which some of the conducted studies used. These activities generally are divided into three groups. The first groups of activities involve Extensive reading program these groups involve skimming and scanning which Nation

(2009) called them “expeditious reading” (p.136). Repeated reading is the second group of activities which requires the learners to read the same text repeatedly, either silently or aloud. Nation (2009) explained how these activities have been done to development fluent reading (p.134-138). The third group involve speed reading course generally consist of a range number of texts, which their range of vocabulary (lexicon) is restricted and followed by several multiple-choice questions.

#### **I) Extensive reading for improving reading comprehension rate:**

Claims that extensive reading could lead to significant improvement in learning reading speeds date back thirty years, and the role of graded readers in programs to promote such reading has an even long history (Bell, 2001, Abstract). A number of research studies have been done to investigate a link between extensive reading and reading speed (e.g., Bell, 2001; Iwahori, 2008). The study by Bell (2001) was conducted in the Yemen Arab Republic on young adult students working in different government ministries. The study evaluated both reading speed and comprehension in tow groups of learners classified to “intensive” and “extensive” reading programs respectively. The “extensive” group was exposed to a regime of graded readers while the “intensive” group studied short texts followed by comprehension questions. The results of the study suggested that subjects exposed to “extensive” reading achieved both significantly faster reading speed and higher score on measures of reading comprehension. The study by Iwahori (2008), conducted in Japan, students were provided with graded readers” books as their reading material, Pretests of reading rate and language proficiency were administered and a *t* test was used to compare means of the rate and language proficiency within groups. Results showed that ER (Extensive Reading) was an effective approach to improve students’” rate and general language proficiency.

## **II) Repeated reading:**

Repeated reading is one of the activities for increasing oral reading speed. Repeated reading has been used with good results with first language readers to help reach a good degree of oral reading fluency (Samuels 1979; Dowhower 198; Rasinki 1990; Monda and O'Shea 1990; cited in Nation, 2009, p.136). In the repeated reading the learners read a text (about 50-300 words long) several times (around 3 to 5). There are some ways in which repeated reading can be established; Nation (2009) explained these conditions (p.131-144). For example, the first condition needed for a fluency development activity is that learners should focus on the message. In the repeated reading this condition can be met by having listener. In this activity that called „assisted repeated reading“ learners read and simultaneously listen to the text during some of the re-reading stages. In foreign language teaching, assisted repeated reading has been found to be effective in developing fluency as measured in words per minute (wpm), but with no significant difference between the impact of repeated reading and extensive reading (Taguchi, Takayasu-Mass, & Gorsuch, 2004). Nation (2009), mentioned the other types of activities for increasing oral reading speed, they include: paired reading, 4/3/2 reading, Extensive reading aloud, read and look up, which he explained thoroughly in his paper (p.137-139).

## **III) Speed reading courses:**

The first course, published for English as a foreign language, was *Reading Faster* by Edward F (1967). The course consisted of texts around 500 words long. The texts were taken from a graded reader and include 2000 word level. The problems associated for that course was that it was not suitable for less advanced students. Quinn and Nation (1974) designed a course including the first 1000 words of English consisting of 25 texts each around 500 words long which followed

by ten comprehension questions .The presence of the reading comprehension questions at the end of the texts encourages learners to read the texts for understanding, rather than focus on skimming the text as quickly as possible. Such courses meet all Nation's conditions for fluency development. Recording reading speed and comprehension by the students themselves encourage them to perform faster than usual speed. Other speed reading courses have not used a controlled vocabulary and this has meant that they do not meet the conditions needed for fluency development (Nation, 2009, p.139).

Chang C-S & Coolege H-W (2010) used *Timed Reading Activities* to improve reading fluency of the college students. Results showed that students doing the timed reading activity increased their reading speed and comprehension. The theoretical framework of the idea that timed reading activities improve reading fluency is based on working memory .to minimize the functional limitation of short memory in the reading process , a variety of strategies have been proposed , one of them is timed reading . In the Timed reading students read under time pressure, the goal is to improve reading speed to an optimal rate that supports comprehension rather than developing speedy readers (Chang C-S & Coolege H-W, 2010, p.286).

### **Scales for measuring reading rate:**

Perhaps the most widely used reading measure is word correct per minute (WC/M). When assessing WC/M, students read passages aloud, often for 1 minute, as evaluator score their reading accuracy for each word. WC/M is a rate measure that incorporates accurate aloud word reading as well as reading speed (Hale A.D, Neddenriep C.E, and Hawkins R.O, 2009, Introduction Para 1) .Other reading skill measures include assessing rates of nonsense word reading (Good & Kaminski, 2002), rates of selecting or providing deleted words (Jenkins &

Jewell, 1993; Parker, Hasbrouck, & Tindal, 1992), and reading comprehension rates (Skinner, 1998).

Comparing with the other rate measures, many researches support that WC/M is the most robust (Marston, 1989, p.18-78; cited in Hale A.D, Neddenriep C.E, and Hawkins R.O, (2009), Introduction Para 4). A lot of researchers have found that WC/M is a reliable and valid measure of broad reading skill development (Fuchs, Fuchs, Hosp, & Jenkins, 2001; Marston, 1989). In addition, researchers evaluating intervention between reading rate and comprehension have shown that WC/M is sensitive enough to detect small changes in reading skill improvement over a short period of time .(e.g. Chang C-S & Coolege H-W,2010; Iwahori 2008).

Although WC/M can be a reliable, valid, and sensitive indicator of overall reading ability, researchers and educators have expressed concerns with WC/M (Potter & Warme, 1990 cited in Hale A.D, Neddenriep C.E, and Hawkins R.O, 2009). One concern is that the validity and sensivity of WC/M begin to decline at the 5<sup>th</sup>-or 6<sup>th</sup>-grade reading level. A second concern is related to the indirect nature of the measure, especially for advanced readers.

Skinner (1998) described another rate measure that directly measure reading comprehension rate. Similar to other rate measures, reading comprehension rate can be converted to a common metric system that is percentage of comprehension questions answered correct per minute (% C/M). The percent of %C/M is the percentage of passage comprehension questions answered correctly for each minute spent reading (Skinner et al., 2002 cited in Hale A.D, Neddenriep C.E, and Hawkins R.O, 2009).

## **Optimal reading rate:**

As mentioned, generally, studies conducted in the area of reading rate and reading comprehension have shown increasing the reading rate will improve reading comprehension.

What then is an optimal reading rate?

There are controversial about the optimal reading speed in the conducted studies.

Research in L1 reading suggested that in silent reading a normal reader reads at approximately 250 to 300 wpm (Carver, 1990; Rayner, 1998). But, many L2 researchers found that many second language students perform well below these figures (Cushing-Weigle & Jensen, 1996; Taguchi, Takayasu-Maass, & Gorsuch, 2004; Nation, 2005). Nation (2009) states that a good reading speed is around 150 words per minute, a good careful silent reading speed is around 250 words per minute, and a good skimming speed is around 500 words per minute (p.131-144). Fry stated that good readers achieve a speed of 350 words per minute, fair readers 250 words, and slow readers reads 150 words per minute.

Carver (1990) made a distinction among five types of reading : scanning ,skimming ,raiding (understanding the message),learning( acquiring information )and memorizing and stated that each type has different reading rate . According to him, the average reading rate for a college student who is raiding is 300 wpm, 200 wpm for learning, and 138 wpm for memorizing. However, some controversial findings have been shown in an experiment by Meyer, Talbot, and Florencio (1999), who explained the effects of time constraints on comprehension with college students under three conditions. No time pressure (90 wpm), mild time pressure (130wpm), and severe time pressure (300wpm).

Although “the relation between reading rate and comprehension remains confusing” (Meyer et al.,1999, p.303 cited in Chang C-S & College H.W, 2010, Para 3) , the most optimal reading rate for L1 readers is between 250 and 350 wpm ; readers reading at this rate comprehend the message with most efficiency (Carver,1982).

### **What about comprehension:**

As the mentioned studies suggest Comprehension is an essential part of the speedy reading courses. Is comprehension decrease while reading fast? With the exception of Cushing-Weigle and Jensen (1996), no studies measure and report on student comprehension levels (Chang A.C.S, College H.W, 2010, p.284-303). In an L1 study by Just and Carpenter (1987), it was suggested that speed readers could skim a text at 600-700 wpm but only could answer questions about the summary of the passage not the details. Nation (2005) states that for a careful silent reading , readers should score at least seven out of ten on comprehension test, comprehending approximately at least 70 percent ; if not , learners should decrease their reading speed and read more texts at a similar level until comprehension improves (p.131-144).

Chung and Nation (2006), and Macalister (2008) did not look into students’ perception, which is a gap in this area of research (Macalister, 2008, p.104-116). In The study by Chang A.C.S & Coolege H.W (2010), it was found that reading comprehension improved only marginally. An explanation for the limited comprehension improvement in that study was that students’ reading rate had not reached the optimal level to improve comprehension.

### **The advantageous and disadvantageous of reading fast:**

It can be deduced from the above studies that advantageous of reading fast goes far beyond it's disadvantageous. It is appropriate for the courses with lots of subject material and with short period of time. By learning to read faster and some techniques associated with it (like eye movement) students will look at and read paired words, phrases, sentences and even higher level rather than isolated words. Researches on reading faster (like Bismoko and Nation 1974 & Cramer, 1975; West, 1941) suggested that increasing reading speed in one language result increasing reading speed in another language. This has been tested from the first language to English and from English to the first language. It is likely that the transfer of training here is the transfer of confidence, that is the confidence that you can read faster and still comprehend (Nation, 2009, V.5 Para 2). Thus making students confident is another advantageous of speed reading.

There would be some disadvantageous of reading faster. Nation (2009) stated that the pressure to go faster can be a source of stress; such pressure can reduce the enjoyment that learners get from reading (p.131-144)

### **Conclusion:**

Giving attention to "fast reading" is an essential part of any language course. It can be concluded that many conducted researches support that there is a relationship between reading rate and reading comprehension and this relationship tend to be positive rather than negative. But the better conclusion can be, for L2 reading there are no conclusive findings as yet, but some studies have shown that L2 learners read much slower in L2 than in L1 (Fraser, 2007; Segalowitz

,Poulsen , & Komodo, 1991, Raymond & Parks, 2002 cited in ; Chang A. C.S, College H.W 2010, conclusion , Para 4 ).

A number of limitations to the findings need to be spotlighted. The first important limitation is that the reliability and validity of instruments used to measure reading speed and comprehension is highly questionable. For example the findings of Hale A.D, Neddenriep C.E, and Hawkins R.O, (2009) and (Williams et al., 2006; cited in Hale A.D, Neddenriep C.E, and Hawkins R.O, 2009) suggested that when considering the validity of brief rate measures that incorporate aloud passage reading speed, what is measured (e.g., comprehension levels, words correct per minute, selected or inserted missing words) may be less important than the measure of reading speed embedded within rate measure.

It would be seen, that there is still more about discovering relationship between speeds and reading comprehension, future studies need to examine the relationship between reading speed and reading comprehension more closely. Some questions that can be raised from such studies can be: Is there a threshold speed below which processing and comprehension becomes impossible? What about the relationship between reading rate and reading comprehension in ESP (English for specific purpose) context? And can another more reliable and valid scales be designed for the purpose of investigating the relationship between speed and reading comprehension? Finally does increasing reading speed in one language (e.g., Persian), increase reading speed in another language (e.g., English)?

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