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Fluency in reading—Thirty-five years later

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Abstract

Paul Nation's talents and interests extend well beyond vocabulary to include research on speaking, writing, classroom learning and teaching, reading, and fluency. In keeping with Nation's interests in fluency, extensive reading, and reading instruction, I outline current perspectives on reading fluency and its role as a key component of reading comprehension abilities. This discussion will include the rapidly increasing importance being given to reading fluency, extensive reading, and reading speed training in English as a first language (L1) contexts in the past decade. While this extraordinary growth in fluency research in English L1 contexts might not be well known to many second language (L2) practitioners, it offers many implications for L2 reading research and instruction (and Nation is one of very few L2 researchers to have been out ahead of this curve). The article will also address reasons why fluency research studies often do not demonstrate extraordinary gains in reading comprehension outcomes, pointing to the incremental nature of both fluency and reading comprehension development. Finally, the article will connect messages consistently advocated for by Nation over the past 35 years with current views on reading fluency.

Keywords: L2 reading fluency, extensive reading, rereading activities

> Fluency development is often neglected in courses, partly because teachers and learners feel that they should always be learning something new. Fluency development, [in contrast], involves making the best use of what is already known (Nation, 2009, p. 2).

Paul Nation is well known for his major contributions to vocabulary knowledge, vocabulary learning, and vocabulary teaching. But Nation's talents and interests extend well beyond vocabulary to include research on speaking, writing, classroom learning and teaching, reading, and fluency. It is his interests in reading and fluency that I would like to take up in this article and show how his early and ongoing interest foresaw a considerable amount of more recent work on reading fluency over the past decade. In fact, Nation's first article (Bismoko & Nation, 1972) focused on reading fluency, specifically on speed reading practice in the L1 (Indonesian) and its impact on L2 English reading speed (see also Bismoko & Nation, 1974). Since that time, in a consistent series of publications, Nation has addressed the importance of reading fluency,

extensive reading, and reading comprehension (see Nation 1979a, 1979b, 1984, 1991, 1996, 1997a, 1997b, 2001, 2005, 2007, 2009; see Chung & Nation, 2006; Wodinsky & Nation, 1988).

In keeping with Nation's interests in fluency, extensive reading, and reading instruction, I will outline current perspectives on reading fluency and its role as a key component of reading comprehension abilities. This discussion will include the rapidly increasing importance being given to reading fluency, extensive reading, and reading speed training in English L1 contexts in the past decade. While this extraordinary growth in fluency research in English L1 contexts might not be well known to many L2 practitioners, it offers many implications for L2 reading research and instruction—and Nation is one of very few L2 researchers to have been out ahead of this curve. The article will also address reasons why fluency research studies often do not demonstrate extraordinary gains in reading comprehension outcomes, pointing to the incremental nature of both fluency and reading comprehension development. Finally, the article will connect messages consistently advocated for by Nation over the past 35 years with current views on reading fluency.

Reading Fluency: What Does It Mean? Why Is It Important?

It is first necessary to note that fluent reading is what most good readers do most of the time when they read almost anything, especially in their L1s. Effective L1 reading comprehension generally assumes reading fluency—a person reading at a reasonable reading rate, between 250-300 WPM, using very efficient and fast word recognition skills, and combining information from various sources while reading under fairly intense time constraints. This is a realistic explanation of what people do when they are skilled readers, whether in the L1 or the L2. Moreover, reading fluency has been associated with reading comprehension in a wide range of research studies over the past 20 years, particularly in English L1 contexts. Correlations between fluency skills and reading comprehension have been reported as high $r = .81$ to .90 between oral passage reading fluency and reading comprehension (Fuch et al., 2001), though lower correlations have been reported for research involving word reading fluency. In a meta-analysis on the effects of repeated reading fluency practice on reading comprehension, the U.S. National Reading Panel (NRP, 2000) reported an effect size of .41 based on 99 comparisons, a moderate effect size overall. A number of other studies have reported significant relationships between fluency skills and reading comprehension, though several studies have also reported weak relationships (see Grabe, 2009; Kuhn & Stahl, 2003).

Defining reading fluency has been a complex issue for multiple reasons. Fluency itself, as a concept, is complex, involving rapid and accurate processing that is also prosodically appropriate. It also entails automatic processing, large amounts of reading, and incidental, or implicit, learning. Based on current research perspectives, a common definition of reading fluency is "the ability to read rapidly with ease and accuracy, and to read with appropriate expression and phrasing. It involves a long incremental process and text comprehension is the expected outcome" (Grabe, 2009). Such a definition of fluency includes skills in rapid word recognition, rapid reading rate, extensive "exposure to print" (large reading amounts), accuracy in comprehension, and incremental learning. What is striking about this set of skills is that they all require the development of automaticity, a large recognition vocabulary, and extended periods

of implicit learning. This skill set is only learned gradually and is not always easy to detect in shorter training studies. Nonetheless fluent reading, in either the L1 or the L2, is the key indicator of a highly skilled reader; moreover, millions of L2 readers actually develop reading fluency after many years of reading L2 texts.

In fact, many reading skills—automatic word recognition, a large recognition vocabulary, skilled grammatical processing, and the formation of basic meaning proposition units for reading comprehension—only emerge as an outcome of implicit learning (rather than explicit learning of aspects of language knowledge). And implicit learning can only come about through extended periods of exposure and meaningful time on task (Ellis, 2005, 2007). Many researchers and teacher trainers have misunderstood the importance of implicit learning that is central for both reading fluency and reading comprehension. Implicit learning is gradual, initially very fragile, and strongly based in repetition of form and process over a long period of time. This is why the connection between fluency skills and implicit learning clearly points to the pedagogical importance of extensive reading, reading rate practice, and text rereading and recycling as learning activities for reading development (see Grabe, 2009; Nation, 2009).

Fluency Research in English L1 Contexts

Research on L1 reading fluency can be divided into one of two major categories: group and individual comparison studies and training studies. Fluency research has involved group and individual comparisons of word recognition skills, amount of enjoyment reading, reading rates, and oral text reading. Training studies, with experimental and control groups, represent the second major approach in fluency research. Many L1 comparison studies have documented the impact of word recognition speed and accuracy on reading comprehension (Bowey, 2005; Perfetti, Landi & Oakhill, 2005; Stanovich, 2000). With respect to training studies, the overwhelming majority of studies on English L1 reading fluency involve various approaches to training with repeated reading of texts in various formats. Perhaps surprisingly, there are relatively few controlled studies of the positive impact of extensive reading or reading rate training, as true experimental studies, in the L1 reading research literature.

Group and Individual Comparison Studies

Comparison studies usually involve measurements of individual differences among readers or differences between groups that strongly represent a key characteristic or lack that characteristic, relatively speaking. There are several important comparison studies assessing the impact of fluency skills of various types on reading comprehension, especially those involving word recognition skills and oral passage fluency. In the case of word recognition skills, many studies comparing individual and group differences among elementary school students have demonstrated that word recognition skills are strongly associated with reading comprehension, though for grade-level and good readers this strong relationship often diminishes from the 5th grade on (Bowey, 2005). Weaker readers, however, generally demonstrate a strong relationship between word recognition skills and reading through adulthood (Perfetti, 1999; Stanovich, 2000). One recent important L1 study has demonstrated the power of word recognition fluency, even for 5th grade-students. Klauda and Guthrie (2008) assessed 278 5th-graders on word learning

fluency, syntactic fluency, and passage reading fluency in relation to reading comprehension. All three contributed significantly to comprehension independent of the other measures. Word recognition fluency, on its own accounted for 43% of the shared variance with reading.

In the case of L1 oral passage reading fluency, work by Fuchs and Fuchs, Jenkins, and others have shown that there is a surprisingly strong relationship between oral passage reading fluency and reading comprehension measures. Fuchs and Fuchs (2001), reporting on an oral reading measure in which students read orally for 1 minute (and then words-correct-per-minute is calculated), have found that this type of fluency measure correlates strongly with standard reading comprehension measures. This type of oral reading measure is also an especially strong predictor with weaker readers (Jenkins et al., 2003). Klauda and Guthrie (2008) also showed that oral passage reading fluency significantly accounted for comprehension abilities, accounting on its own for 42% of the shared variance with comprehension.

The impact of amount of reading on reading comprehension has also been extensively studied in L1 reading contexts. Multiple comparison studies have explored the impact of reading amount—with high-volume readers and low-volume readers—on reading comprehension. Greaney and Hegarty (1987) reported a significant correlation between reading achievement and reading for enjoyment (r = .44) among 138 5th grade students in Ireland. Anderson, Wilson and Fielding (1988) studied 188 5th-grade students and found that amount of time spent reading was the best predictor of reading comprehension—while controlling for the students 2nd grade reading ability. Cipielewski and Stanovich (1992) showed the amount of reading was a strong predictor of 5th grade reading abilities for 88 students, even after controlling for 3rd grade reading abilities. Guthrie et al. (1999) carried out two studies, both of which showed the amount of reading correlated significantly with reading comprehension. Elley (1992) reported consistently significant relationships between amount of reading and reading achievement for 4th grade students across 30 countries participating in an international reading survey.

Comparison studies involving the benefits of extensive reading on vocabulary growth have also indicated that students learn 5–15% of new words from incidental exposure to these words while reading, and this percentage increases with increasing numbers of repeated exposures to words (Schmitt, 2008; Stahl & Nagy, 2006). Stanovich and colleagues, using innovative checklist measurement methods, have also demonstrated a strong connection between amount of reading and vocabulary growth (Echols et al., 1996; Stanovich & Cunningham, 1992). The comparison studies showing strong relations between vocabulary knowledge and reading are also persuasive. Thorndike (1973), presenting data from 15 countries, reported significant correlations across countries of r = .64 to r = .75 between reading and vocabulary knowledge. Stanovich (2000, 1986) reported on correlations between reading and vocabulary of r = .64 and r = .76 for students from third through 7th grade. Carver (2003) reported that, with reading and vocabulary score transformed into grade-equivalent measures, correlations between reading and vocabulary in his study were almost perfect.

There are few if any L1 comparative studies that specifically address the impact of extensive reading or reading rate practices directly on reading comprehension. One could take a measure of reading rate—or silent reading fluency—and a measure of reading comprehension and determine the correlation (though this simple approach would need to control for other possibly

confounding variables). This has not commonly been reported in the L1 research literature, and extensive reading and reading rate are more likely to be assessed through training studies.

Experimental Treatment Studies

Experimental studies on fluency training are widespread in L1 contexts, especially with elementary-grade students, and results are largely positive. A few studies have shown that word recognition practice not only leads to faster word recognition fluency but also improved reading comprehension when words trained on appear in a reading text (Levy, Abello, & Lysynchuk, 1997; Tan & Nicholson, 1997; cf., Martin-Chang & Levy, 2005). However, most word recognition training studies do not show a significant positive impact directly on reading comprehension. In contrast, research on passage fluency training studies has been strikingly strong, and perhaps the most surprising result of the U.S. National Reading Panel (NRP, 2000) report. In particular, training that involves students engaged in repeated reading of texts, under a variety of conditions and specific activities, almost uniformly led to improved comprehension outcomes (NRP, 2000). Kuhn and Stahl (2003), in a more wide-ranging meta-analysis, argued that the positive outcomes associated with repeated reading practices may be associated more with elementary-level students and with reading-disability students. However, two further meta-analyses, Chard et al. (2002) and Therrien (2004), reinforced the conclusions of the National Reading Panel, arguing that repeated reading practices, of various types, strongly influence reading comprehension abilities. A recent study by Therrien et al. (2006) demonstrated that training 4th–7th grade students in repeated reading with 50 passages over 4 months led to both improved fluency and reading comprehension over a control group, reinforcing the general findings of the National Reading Panel (see also Vadasy & Sanders, 2008).

L1 research based on training studies has proven to be far less positive when examining the relationship between reading comprehension and extensive reading and reading rate training. While extensive reading programs have been supported by many researchers, there is relatively little support from extensive reading studies for improving reading comprehension. In one such study, Homan, Klesius, and Hite (1993) demonstrated through a 7-week training study with 6th grade students that practice with extensive reading led to significant reading gains in a pretest and posttest comparison. In another, Kuhn et al. (2006) demonstrated that training in wide reading was as effective as repeated reading practice and students performed significantly better on a post-treatment reading comprehension task than a control group. However, the National Reading Panel (NRP, 2000) could not identify a single strongly positive experimental training study involving the impact of extensive reading on reading comprehension achievement. With respect to reading rate training, I know of no published L1 study in the past two decades on the relationship between reading rate training and reading comprehension gains. Overall, then, the ability of experimental training studies to demonstrate strong linkages between comprehension abilities and extensive reading and reading rate training appears to be extremely limited in L1 contexts.

Fluency Research in L2 Contexts

Fluency discussions in L2 settings are generally quite distinct from reading fluency discussions in L1 contexts. SLA perspectives since Brumfit (1985) have seen accuracy and fluency as distinct and potentially contrasting skills in language development. In the 1990s, fluency was commonly juxtaposed with accuracy and complexity as potentially competing factors in L2 performance (see discussions in Long & Doughty, 2003; Skehan, 1998). In other contexts of L2 language learning, fluency has generally been ignored (e.g., Hinkel, 2005). However, strong psycholinguistic perspectives by Schmidt (1992) and Segalowitz (2000; Segalowitz & Segalowitz, 1993) have explained L2 fluency in ways similar to L1 reading researchers, especially the notion that fluency and accuracy are not competing factors in language performance. Instead, fluency builds automaticity and chunking (recognizing bigger units). As a result, fluency promotes accuracy, and accuracy is an indication of increasing fluency in language performance (as well as in other types of cognitive performance). It is important to note that Nation was also an early advocate of language fluency and reading fluency from this psycholinguistic perspective, making him a true pioneer in recognizing the importance of fluency development for language learning, and especially for reading (Nation, 1989, 1991, 1996; Arevart & Nation, 1991).

In examining research on reading fluency in L2 contexts, there are far fewer studies than in English L1 contexts. This difference is not surprising in light of the vastly greater number of L1 reading researchers and the much larger levels of grant funding for L1 literacy research. Nonetheless, there is important L2 reading fluency research to report.

Group and Individual Comparison Studies

A few L2 group comparison studies have examined the impact of word recognition skills and passage reading ability on reading comprehension. In large-scale causal modeling studies, Verhoeven (2000; Droop & Verhoeven, 2003) has demonstrated a significant causal relationship between word recognition skills and reading comprehension measures. Shiotsu (2009) presented a more complex perspective on the relationship between L2 word recognition and reading ability, noting that lexical access processing includes a semantic component as a critical aspect of word recognition fluency. At the level of passage reading fluency, Lems (2005) investigated the relationship between oral passage reading and reading comprehension for 232 L2 adult-education students. Passage reading fluency correlated significantly with reading comprehension and more proficient students demonstrated a stronger relationship.

Comparison studies involving amount of reading have also been studied in L2 contexts, although not extensively. Pichette (2005) examined 55 French-speaking university ESL students in Canada. She found a significant relationship between time spent reading and reading comprehension abilities ($r = .35$). Gradman and Hanania (1991), in a survey of factors predicting success on the TOEFL exam, found that amount of out-of-class reading was the strongest predictor on TOEFL performance.

Experimental Treatment Studies

Turning to L2 word-recognition fluency treatment studies, Akamatsu (2008), Segalowitz and Segalowitz (1993), and Fukkink, Hulstijn and Simis (2005) have all looked at word recognition skills and results have shown that direct training on word recognition significantly improves word recognition abilities. In the case of Fukkink, Hulstijn and Simis, they tested for, but did not find, a significant improvement in reading comprehension after 2 days of word recognition training.

There have also been a few passage rereading fluency treatment studies in the past 10 years that indicate improvements in reading fluency, and in some cases, in reading comprehension. Taguchi and colleagues (Taguchi, Takayasu-Maass, & Gorsuch, 2004; Gorsuch & Taguchi, 2008) have demonstrated that a training program of silent repeated reading practice will significantly improve not only reading rate but also reading comprehension. Jeon (2009) trained Korean secondary-level EFL students in oral passage rereading and showed that students significantly increased their reading rate and responded positively to the extended oral rereading experience.

Extensive reading and its impact on reading comprehension, reading fluency, and vocabulary is an area that has been investigated more thoroughly in L2 contexts than in L1 contexts. Several studies are reviewed in Grabe (2009), Horst (2009), Iwahori (2008), Nation (2005), Schmitt (2008), and Waring and Nation (2004). In one extraordinary L2 study, Lightbown and colleagues (Lightbown, 1992; Lightbown et al., 2002) showed that *extensive reading alone* maintained Canadian ESL immersion students at L2 grade-level performance from 4th through 6th grade. In general, results support the role of L2 extensive reading in improving reading comprehension, fluency, and vocabulary.

As an instructional extension of extensive reading, reading rate training is seldom addressed. In one important recent study, Chung and Nation (2006) examined the effects of timed reading training on 40 Korean university EFL students, reading 23 timed readings over 9 weeks. Students improved their English reading speed 52 per cent, from 141 WPM on average to 214 WPM. These gains are far higher than one would expect under non-training situations.

Overall, the L2 fluency research, while limited in number of studies, generally supports the importance of word reading fluency, passage reading fluency, extensive reading, and reading rate training on vocabulary and reading comprehension improvements. To the extent that this set of research studies can be generalized, the results agree with findings in the L1 reading research literature. It is fair to say that each of these types of practices promoting fluency are effective when students are trained well and trained for an extended period of time. Even though fluency skills and reading amount involve implicit learning, and require incremental learning over a long period of time, evidence to date indicates that these practices need to be part of any well developed reading curriculum, much as argued for by Nation (1991, 1996, 2009).

Connecting to the Work of Nation

It should be evident that Paul Nation has been in the forefront of thinking about reading fluency and reading development for over 35 years. While most of the current views emphasizing fluency have been developed and explored in the last 10 years, Nation was talking about the importance of fluency and reading rate 35 years ago (Bismoko & Nation, 1972), and has been writing consistently about fluency for the past 20 years. A number of his specific ideas related to fluency have been especially prescient, often leading other related commentaries on fluency by more than a decade. This "leading voice" role for Nation is exemplified in a number of key studies in the last 20 years.

Nation (1991) is one of the first commentaries to reassert the importance of oral rereading practice as essential for L2 reading fluency. Even though many teachers and teacher trainers still hold to the more "standard" idea that oral reading is a bad practice in a reading curriculum, evidence over the past 15 years has accumulated that oral reading activities have an important role to play in reading development. Oral rereading practice is a good idea and should be used in class. Moreover, the teaching of explicit knowledge of words is not enough for fluency development. Students must be taught to use these words fluently, and automatic word recognition skills need to be developed gradually through fluency-oriented activities. Nation has been making this argument well before others have taken up the issue (e.g., Nation, 2001).

Nation (1989, 1991, 1996) made a strong argument for rejecting the distinction between fluency and accuracy, showing that this distinction misrepresents the long-term reciprocal supportive relationship between fluency and accuracy. Increasing fluency should lead to increasing accuracy, as more time can be devoted to quality of production or reception. As Nation states, "it is not surprising….that developments in fluency are related to developments in accuracy" (Nation, 1996, p. 10), and 13 years later, "fluency is….accompanied by improvements in accuracy and complexity" (Nation 2009, p. 65).

Nation (1997a) emphasized the importance of incremental, incidental learning as it applies to both vocabulary and reading. In reading, word recognition, vocabulary, and fluent use of language, learning gains are fragile and need to be reinforced consistently over a period of time. These skills and language resources are only consolidated through multiple exposures and implicit learning: "The benefits of extensive reading do not come in the short term" (Nation, 1997, p. 16).

Chung and Nation (2006) is a ground-breaking study in that it provided reliable evidence that training in a reading rate program leads to better student reading rates. While many reading specialists have promoted reading rate training for a long time, there has been almost no controlled empirical evidence, until their study, to show that reading rate training would strongly contribute to reading fluency improvements.

Nation (2009) provides many useful practical suggestions for developing L2 reading fluency, one of only a few discussions of teaching L2 reading fluency (see also Anderson, 1999, 2008; Grabe, 2009). While there is no space to develop practical applications based on this review of

reading fluency, these sources are the places to begin in terms of L2 resources for teachers. Interested teachers may also want to look at Rasinski (2003) for an excellent L1 resource book.

In closing, it is important also to recognize the strong linkage that Nation makes throughout his publications between research and instruction. This observation is true not only for vocabulary learning and teaching, for which Nation is so well known, but also for his explorations of reading, extensive reading, and reading fluency. It has been my pleasure to review and highlight Nation's long record of research and publications on reading fluency, as well as what a curriculum should do to promote reading fluency. Nation was addressing these issues well before most other L2 reading researchers were, and his instructional recommendations are now supported by a wide range of more recent research in both L1 and L2 contexts.

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