

Northern Illinois University Document  
Delivery



ILLiad TN: 278185

**Journal Title:** Reading Psychology

**Volume:** 13

**Issue:** 4

**Month/Year:** 1992

**Pages:** 337-343

**Article Author:** Richard Robinson

**Article Title:** An interview with Ronald P.  
Carver

**Imprint:**

**Call #:** BF456.R2 R34

**Location:**

**Item #:**

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Rylant, C. (1982). *When I was young in the mountains*. New York: Dutton.

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### Endnotes

<sup>1</sup> Project ACHIEVE was funded by a grant from the U.S. Department of Education's Secondary Schools Basic Skills Demonstration Assistance Program. Co-project directors were C. R. Baber (UNCG) and C. Leviner (North Carolina Public Schools). The communication literacy module was developed by B. D. Stoodt (UNCG) in collaboration with S. Lea (North Carolina Public Schools).

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## LEADERS IN READING RESEARCH AND INSTRUCTION

*Edited by*

RICHARD ROBINSON, *University of Missouri-Columbia*

AN INTERVIEW WITH RONALD P. CARVER, CHAIR OF THE DIVISION OF EDUCATIONAL RESEARCH AND PSYCHOLOGY, SCHOOL OF EDUCATION, UNIVERSITY OF MISSOURI AT KANSAS CITY.

Ronald P. Carver is Chair of the Division of Educational Research and Psychology in the School of Education at the University of Missouri at Kansas City. At the 1990 meeting of the National Reading Conference, he was given the Oscar Causey Award for Outstanding Contributions to Reading Research. Also in 1990, Academic Press published his book, "Reading Rate: A Review of Theory and Research." He has conducted extensive research in reading rate, reading comprehension, and reading assessment.

**Q.** Much of your research has focused upon measurement in reading. From your perspective, what progress has been made in the last five years in the accurate measurement of reading?

**A.** In my opinion, measurement in reading has recently taken a quantum leap. In order to understand this leap, I must first give you some background.

Reading of textual material can be roughly categorized into five basic processes, called reading gears. Gear 1 is memorizing. Gear 2 is learning. Gear 3 is rauding. Gear 4 is skimming. Gear 5 is scanning.

The third gear of reading, called rauding, is typical or normal reading; it is the most important of all the basic reading processes because it occurs most frequently and is common to all readers. Therefore, the most important reading ability is rauding ability, which is the ability to comprehend the complete thoughts in the sentences of textual material.

The breakthrough I want to tell you about, deals with measuring rauding ability. Individual differences in the ability to raud can be explained with one primary factor and two subfactors. The primary factor is called rauding efficiency level. It is similar to what has traditionally been called general reading ability. It can be measured by traditional, standardized reading comprehension tests. The two correlated subfactors of rauding efficiency level are rauding accuracy level and rauding rate level. Rauding accuracy level is similar to instructional reading level; it is reflected by a host of measures, including vocabulary tests, listening test, and passage comprehension tests. Rauding rate level is similar to the traditional idea of reading rate, or the ability to read fast with comprehension.

From my own data and from reanalyzing data collected from other researchers, I have found something rather compelling. For children in elementary school, the two subfactors of accuracy and rate are so highly correlated that only one factor is apparent—an efficiency level factor, or a general reading ability factor. By the time students reach the college level, these two subfactors have become independent enough (uncorrelated) such that both are needed to explain individual differences in rauding ability.

So, the breakthrough that excites me is that we now have a relatively simple way to measure progress in the most important aspect of reading ability. We can measure rauding efficiency level and its two correlated subfactors—rauding accuracy level and rauding rate level—and be relatively sure we are not missing something important with respect to reading ability. With these measures, we can more adequately evaluate new methods of teaching reading, such as the whole language approach. For example, if a classroom of students are taught by the whole language approach during a school year, will they gain more in rauding efficiency level (general reading ability) or will their gain in rauding accuracy level (reading level) be offset by a loss

in rauding rate level (reading rate) so there is no gain in rauding efficiency level?

**Q.** What do you see as being some of the major challenges for reading researchers in developing better measures in reading?

**A.** The lack of a widely accepted criterion for measuring progress in reading ability has kept us from decisively evaluating the effectiveness of each new fad in reading instruction. If the field of reading decides that general reading ability does consist of two related components—rauding accuracy level (instructional level) and rauding rate level (rate of accurate reading), then the criterion problem will be solved. That solution should be followed by rather pure measures of these fundamental components. Then, it should be only a matter of time until we will be able to sort out which instructional methods are most effective for causing improvement during a year of schooling.

I have not forgotten that standardized reading comprehension tests have always been available as a solution to the criterion problem. However, they have been criticized for many reasons, most recently for not having a compelling theoretical base. Now, there is strong evidence that these tests are generally valid for measuring individual differences in efficiency, which means that they have an accuracy level component and a rate level component.

Let's consider the Iowa Test of Basic Skills. It contains a Reading Comprehension Test and a Vocabulary Test. The Reading Comprehension Test measures individual differences in general reading ability, or rauding efficiency level. The Vocabulary Test reflects individual differences in rauding accuracy level or instructional level. In this battery, there is no test that reflects rauding rate level even though this ability is indirectly reflected by the Reading Comprehension Test. I am sure that most school administrators and teachers are not aware that this test of Reading Comprehension is sensitive to speed of reading almost as much as accuracy of reading.

Suppose you have an instructional technique that is designed to improve the reading level of students. If you see the ITBS Reading Comprehension test as your criterion variable, you may find very little gain because this criterion is also highly influenced by rate of accurate

reading (rauding rate). Therefore, this measure is substantially influenced by something that you did not purport to improve; actual gains may not be apparent. It would be better to measure both rauding accuracy level and rauding rate level so you could determine whether gain was made in your primary target, rauding accuracy level, without incurring any losses in rauding rate level.

**Q.** From your perspective as a leader in the field of reading research what do you see as being some of the significant developments in the near future?

**A.** I have developed short, but valid, standardized tests which provide indicants of rauding accuracy level, rauding rate level, and rauding efficiency level. There are edumetric tests that measure change, gain, and progress on an absolute scale. For example, a student who scores at GE = 5.5 on the Accuracy Level test is supposed to be able to raud textual material at the fifth grade level of difficulty with 75% accuracy of comprehension. Notice that these tests not only purport to measure within individual gain on a scale from the first grade level to the college level. These measures are available in printed form for group administration and they also can be given individually by a computer. So, in the near future I expect to collect further evidence relevant to the quantum leap I spoke about earlier.

With respect to your question, I would feel more comfortable in stating what I think *should* happen, rather than trying to predict what *will* happen in the field of reading research.

When I see people in reading focusing on getting children to read for pleasure as the *primary* goal, I get worried. In my research, I have found that reading for pleasure takes place at the independent level where there are no new words or challenging concepts. Most importantly, there are no gains in rauding ability. Progress in rauding ability involves gain in general knowledge, and this occurs only minimally when reading easy fiction. Students who reach the eighth grade rauding level are able to read most newspapers, magazines, and books—a prerequisite for being a good citizen. We must make sure that almost all children reach the eighth grade rauding level, whether they like to read or not.

In our sister area of arithmetic, we expect children to learn whether they like arithmetic or not. Where is it written that math should be done for pleasure? Likewise, I cannot accept the premise that our *primary* goal is to get children hooked on reading so that they will choose to read novels on their own. As educators we can easily justify our efforts to get children "hooked on books" if it can be shown that this improves their rauding ability more than some alternative instructional goal. I think that area of reading research must devote most of its resources to investigating what works and what doesn't work. That is, reading researchers should focus upon answering the following question: what aspects of instruction causes the most gain in reading level *and* reading rate during a year of schooling?

Secondly, it bothers me greatly that the field of reading adopts instructional techniques and tests more on the basis of fashion than facts. With respect to instruction, where is the evidence that a whole language approach provides the most gain in general reading ability (rauding efficiency level)? It could well be that reading should only be taught as a subject in the curriculum during kindergarten, first, and second grade. From then on, for most children, the most gain in reading ability may come from the learning that occurs in the content areas of language arts, English, social studies, history, science, math, etc. Those children who have not reached the second grade level in reading ability may be the only ones who need "reading" instruction and that help probably could be best administered by a reading specialist.

With respect to testing, I see entire states developing new reading tests, such as Illinois and Michigan, which are based more on fashion than fact. These tests seem to have been derived from schema theory. This theory purports to be relevant to learning and memorizing processes associated with studying relatively difficult material; this theory does *not* purport to be relevant to the rauding process which is the typical or normal reading that most educators are interested in improving. Given these limitations of schema theory, it should not be surprising that there is strong evidence that (a) the prediction activities involved in these tests do not improve the accuracy of comprehension, (b) individual differences in prior knowledge of a specific long passage have a minimal impact upon the amount of passage comprehension, and (c) test type (expository vs. narrative) also has a trivial impact

upon amount comprehended when the readability of the material is controlled.

These new tests based on schema theory are also touted for having long passages when there is no evidence that long passages provide more reliable or valid measures of reading ability. My guess is that long passages allow for more variability in motivation and therefore less reliability. These tests are also touted for providing more than one answer to a question, as if this was automatically and unquestionably a better idea. Over 20 years ago, I thought that providing more than one answer was a better idea. But, in my own research, I found that I got less reliable and less valid scores using test questions with more than one correct answer. I would predict that if these new tests with multiple answers to a single question were compared to the traditional single answer questions, the new tests would also be shown to be less reliable and less valid.

Perhaps the biggest problem with these new state tests, based on schema theory, is that their goal is to change instruction so that children learn to read better. Notice that we are not only being sold on a better measuring device but we are also being told that using this device will produce better readers. By analogy, we are being sold a new set of bathroom scales that not only accurately measure how much we weigh but by using these scales we will also melt off pounds. This type of claim for a measuring instrument is unusual, and usual claims deserve unusual evidence. What is the evidence that using this new type of reading test improves reading ability, as claimed? None! In fact, this is the most embarrassing aspect of these new reading test in Illinois and Michigan. No evidence has been collected relevant to this unusual claim. Furthermore, there are no plans to collect this evidence, even though it would be a relative simple matter for a state to collect these data.

From a practical standpoint, it is not surprising that there has been no evidence collected relevant to these unusual claims. Remember, those involved have little to gain and much to lose from a vested interest standpoint. If these tests do not live up to what is claimed for them, many people will be very embarrassed and they could lose their jobs.

It seems quite possible to me that using the Illinois and Michigan kind of test could even produce poorer readers because all the focus is upon accuracy of passage comprehension without regard for rate. Since general reading ability also involves rate, it seems possible that there could be no gain or even a loss in reading rate due to a focus upon going slow to comprehend more. Also, reading light fiction for pleasure and spending a lot of time making predictions during the school year, could result in no gain or a loss in reading accuracy level, adding up to a loss in general reading ability. The main point is, there is no good excuse for adopting fashionable theoretical ideas without conducting sound empirical research relevant to their validity.

The circle of going from fad to fad in reading will never be broken unless reading researchers demand that unusual theoretical claims are backed up with unusually sound empirical evidence.