

## **Extracts taken from Romance and Reality**

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See Chapter 20, p392, in Stanovich, K. E. (2000). *Progress in Understanding Reading: Scientific Foundations and New Frontiers*. New York: Guilford Press.

- Matthew Effects
- Contextual Word Reading
- Word Calling
- Disputes in Education: science v politics

### **Research I have done that almost everyone likes**

Even more popular has been my work on Matthew effects in reading development (Stanovich, 1986). The term Matthew effects derives from the Gospel according to Matthew: "For unto every one that hath shall be given, and he shall have abundance; but from him that hath not shall be taken away even that which he hath" (XXV:29). It is used to describe rich-get-richer and poor-get-poorer effects that are embedded into the educational process. Herb Walberg (Walberg & Tsai, 1983) had focused attention on the process by which early educational achievement spawns faster rates of subsequent achievement, and in a 1986 paper I specifically explored the idea of Matthew effects in the domain of reading achievement. I outlined a model of how individual differences in early reading acquisition were magnified by the differential cognitive, motivational, and educational experiences of children who vary in early reading development.

In that particular paper, I detailed several developmental mechanisms that are of continuing theoretical and empirical interest. Put simply, the story went something like this: Children who begin school with little phonological awareness have trouble acquiring alphabetic coding skill and thus have difficulty recognising words. Reading for meaning is greatly hindered when children are having too much trouble with word recognition. When word recognition processes demand too much cognitive capacity, fewer cognitive resources are left to allocate to higher-level processes of integration and comprehension. Trying to read without the cognitive resources to allocate to understanding the meaning of text is not a rewarding experience. Such unrewarding early reading experiences lead to less involvement in reading-related activities. Lack of exposure and practice on the part of the less-skilled reader further delays the development of automaticity and speed at the word recognition level. Thus, reading for meaning is hindered, unrewarding reading experiences multiply, practice is avoided or merely tolerated without real cognitive involvement, and the negative spiral of cumulative disadvantage continues. Troublesome side effects begin to be associated with school experiences, and these become a further hindrance to school achievement.

Conversely, children who quickly develop efficient decoding processes find reading enjoyable because they can concentrate on the meaning of text. They read more in school and, of equal importance, reading becomes a self-chosen activity for them. The additional exposure and practice that they get further develops their reading abilities. I speculated that reading develops syntactic knowledge, facilitates vocabulary growth, and broadens the general knowledge base. This facilitates the reading of more difficult and interesting texts. Thus, the increased reading experiences of these children have important positive feedback effects that are denied the slowly progressing reader....

## **Research I have done that not everyone likes**

One of the first research problems in reading that I investigated was the role of context in word recognition. At the time I began these investigations with my colleague Richard West (in the early 1970s), several popular theories posited that the ability to use contextual information to predict upcoming words was an important factor in explaining individual differences in reading ability. Fluent readers were said to have attained their skill because of heavy reliance on context in identifying words. Reading difficulties were thought to arise because some readers could not, or would not, use context to predict upcoming words.

To our surprise at the time (West and I had started these investigations thinking that the context view was correct), our initial investigations of this problem revealed the opposite: It was the less-skilled readers who were more dependent upon context for word recognition (Stanovich, West, & Freeman, 1981; West & Stanovich, 1978). The reason for this finding eventually became apparent: The word recognition processes of the skilled reader were so rapid and automatic that they did not need to rely on contextual information.

Over 10 years later, this finding is one of the most consistent and well replicated in all of reading research. It has been found with all types of readers, in all types of texts, and in a variety of different paradigms (e.g., Bruck, 1988; Leu, DeGross, & Simons, 1986; Nicholson, 1991; Nicholson, Lillas, & Rzoka, 1988). Reviews of the dozens of different studies that converge on this conclusion are contained in Perfetti (1985), Rayner and Pollatsek (1989), and Stanovich (1980, 1984, 1986, 1991).

Perhaps understandably, at the time our initial findings were published they were not warmly received by researchers invested in the context-use theory that the results falsified. Today, however, the implications of these results have been incorporated into all major scientific models of reading process (e.g., Just and Carpenter, 1987; Rayner & Pollatsek, 1989). Scientifically, the results are now uncontroversial. However, they are still not welcomed by some reading educators who would perpetuate the mistaken view that an emphasis on contextual prediction is the way to good reading.

It should be noted here that the findings I have referred to concern the use of context as an aid to word recognition rather than as a mechanism in the comprehension process. Although good readers employ contextual information more fluently in the comprehension process, they are not more reliant on contextual information for word recognition. A tendency to conflate two levels of processing in discussions of context effects has caused enormous confusion among both researchers and practitioners.

Additional confusion has been caused by the use of imprecise labels such as “word calling”. Despite the frequency with which this term occurs in reading publications, it is rare to find authors who spell out exactly what they mean by the term “word caller”. However, the implicit assumptions behind its use appear to be as follows: (a) Word calling occurs when the words in the text are efficiently decoded into their spoken forms without comprehension of the passage taking place. (b) This is a bad thing, because (c) it means that the child does not understand the true purpose of reading, which is extracting meaning from the text. (d) Children engaging in word calling do so because they have learned inappropriate reading strategies. (e) The strategic difficulty is one of overreliance on phonemic strategies.

The idea of word calling embodying the assumptions outlined above has gained popularity despite the lack of evidence that it applies to an appreciable number of poor readers. There is no research evidence indicating that decoding a known word into a phonological form often takes place without meaning extraction. To the contrary, a substantial body of evidence indicates that even for young children, word recognition automatically leads to meaning activation (Ehri, 1977; Stanovich, 1986) *when the meaning of the word is adequately established in memory.*

The latter requirement is crucial. Reports of word calling rarely indicate whether the words that are called are even in the child's listening vocabulary. If the child would not understand the meaning of the word or passage when spoken, then overuse of decoding strategies can hardly be blamed if the child does not understand the written words. In short, a minimal requirement for establishing word calling is the demonstration that the written material being pronounced is within the listening comprehension abilities of the child.

Secondly, it is necessary to show that the word calling is not a simple consequence of poor decoding. Although reasonably efficient decoding would appear to be the integral part of any meaningful definition of word calling, decoding skills are rarely assessed carefully before a child is labelled a word caller. It is quite possible for accurate decoding to be so slow and capacity-demanding that it strains available cognitive resources and causes comprehension breakdowns. Such accurate but capacity-demanding decoding with little comprehension should not be considered word calling as defined above. To the contrary, it is a qualitatively different type of phenomenon. Comprehension fails not because of overreliance on decoding, but because decoding skill is not developed enough.

*Further extracts from Romance and Reality...*

### **The connecting thread: Science**

Although I have dichotomised my research projects in this essay, I really do not think of them this way. The projects, to me, are all similar in a mundane way: They are interesting problems about the reading process that were amenable to scientific test. And the latter point is really the common thread. I believe in letting scientific evidence answer questions about the nature of the reading process. Nothing has retarded the cumulative growth of knowledge in the psychology of reading more than failure to deal with problems in a scientific manner.

Education has suffered because its dominant model for adjudicating disputes is political (with corresponding factions and interest groups) rather than scientific. Education's well-known susceptibility to the "authority syndrome" stems from its tacit endorsement of a personalistic view of knowledge acquisition: the belief that knowledge resides within particular individuals who then dispenses it to others. Knowledge in science is publicly verifiable (see Stanovich, 1992) and thus depersonalized in the sense that it is not the unique possession of particular individuals or groups (Popper, 1972).

An adherence to a subjective, personalized view of knowledge is what continually leads to educational fads that could easily be avoided by grounding teachers and other practitioners in the importance of scientific thinking for solving educational problems. This training should include an explicit discussion of some of the misconceptions that people hold about science, for example, that

the idea of objective depersonalised knowledge in the social sciences dehumanises people. Such facile slogans compromise both research and practice in many educational domains.

What science actually accomplishes with its conception of publicly verifiable knowledge is the democratisation of knowledge, and outcome that frees practitioners and researchers from slavish dependence on authority; and it is subjective personalized views of knowledge that degrade human intellect by creating conditions in which it is inevitably subjugated to an elite whose “personal” knowledge is not accessible to all (Bronowski, 1956, 1977; Medawar, 1982, 1984, 1990; Popper, 1971).

The scientific criteria for evaluating knowledge claims are not complicated and could easily be included in teacher-training programs, but they usually are not (thus a major opportunity to free teachers from reliance on authority is lost right at the beginning). These criteria included the publication of findings in refereed journals (scientific publications that employ a process of peer review), the duplication of the results by other investigators, and a consensus within a particular research community on whether or not there is a critical mass of studies that point towards a particular conclusion. These mechanisms are some of the best consumer protections that we can give teachers.

Teachers should also be introduced to the values of science. Although the technological products of science are value free in that they can be used for good or ill, it is not true that the process of science is value free (Bronowski, 1956, 1977). For example, objectivity is a value that is fundamental to science and simply means that we let nature speak for itself without imposing our wishes on it. The fact that this goal is unattainable for any single human being should not dissuade us from holding objectivity as a value (this would be confusing what is the case and what ought to be). The sorry state of fields that have abandoned objectivity is perhaps the strongest argument for holding to it as a value.

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