

The Whole Language Approach to Reading: An empiricist critique

A revised version of:

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Historically, the consideration of learning disability has emphasised within-person factors to explain the unexpected difficulty that academic skill development poses for students with such disability. Unfortunately, the impact of the quality of initial and subsequent instruction in ameliorating or exacerbating the outcomes of such disability has received rather less exposure until recently.

During the 1980's an approach to education, whole language, became the major model for educational practice in Australia (House of Representatives Standing Committee on Employment, Education, and Training, 1992). Increasing controversy developed, both in the research community (Eldredge, 1991; Fields & Kempe, 1992; Gersten & Dimino, 1993; Liberman & Liberman, 1990; Mather, 1992; McCaslin, 1989; Stahl & Miller, 1989; Vellutino, 1991; Weir, 1990), and in the popular press (Hempenstall, 1994, 1995; Prior, 1993) about the impact of the approach on the attainments of students educated within this framework. In particular, concern was expressed (Bateman, 1991; Blachman, 1991; Liberman, Shankweiler, & Liberman, 1989; Yates, 1988) about the possibly detrimental effects on "at-risk" students (including those with learning disabilities).

Whole language: History

The whole language approach has its roots in the meaning-emphasis, whole-word model of teaching reading. Its more recent relation was an approach called "language experience" which became popular in the mid-1960's. The language experience approach emphasized the knowledge which children bring to the reading situation - a position diametrically opposed to the Lockian view of "tabula rasa" (the child's mind as a blank slate on which education writes its message). In this language experience approach there is a firm link between oral language and written language, between reading & writing. "Anything I can say, I can write; anything I can write, I can read" (Weaver, 1988, p. 44).

The teacher uses the prior experiences and school excursions which a child has had to enable the child to dictate a story which the teacher records. The teacher and child read and re-read this story until the child can do so alone. Any skill teaching must derive from the child's story, hence the expression -teaching only from a meaningful context. There is the possibility within this framework that teachers will provide structured learning experiences around fortuitous opportunity but no clear recommendation that they should.

Whether the whole language approach represents an evolution from language experience (Stahl & Miller, 1989) or is sufficiently different to be considered an entirely separate model (McGee & Lomax, 1990), it is clear that they have commonalities and differences. Both emphasize the relevance of the language and knowledge which children bring to reading and which helps to link oral and written language. Both object to subskills teaching in isolation from the context of meaningful literature. In whole language, however, teachers are less likely to write children's dictated stories and more likely to encourage the children to write their own stories using invented spelling (Schickedanz, 1990). Language experience stresses the inter-relatedness of reading, writing, speaking and listening but, unlike whole language, delays the introduction of writing until the child has mastered a reasonable number of sight words (Allen, 1976; Stauffer, 1969, cited in Stahl & Miller, 1989). Weaver (1988) makes it clear that the developmental process for writing follows a scribbling-invented spelling - mature writing sequence, and hence writing should be a natural part of the language process from the beginning stages of reading development.

Goodman (1986) describes whole language as a philosophy rather than as a series of prescribed activities. Thus whole language teaching consists of those activities a teacher with a thorough understanding of the philosophy would use. The teacher aims to provide a proper environment which will encourage children to develop their skills at their own developmentally appropriate pace.

This makes it difficult to describe what actually occurs in a whole language classroom, or whether there is

any consistency from classroom to classroom which would enable an observer (other than one imbued with the philosophy) to recognize that the approach was indeed whole language. This vagueness is still evident in a selection of recent journal articles (Smith, 1991; Newman, 1991; Johnson & Stone, 1991). There is a strong emphasis on principles e.g. the benefits of a natural learning environment (Goodman, 1986), and of exposure to a literate environment (Sykes, 1991). Mills and Clyde (1990, cited in Johnson & Stone, 1991) provide an outline of the whole language philosophy as evidenced in classrooms.

Highlight authentic speech & literacy events; provide choices for learners; communicate a sense of trust in the learners; empower all participants as teachers and learners; encourage risk taking; promote collaboration in developing the curriculum; be multimodal in nature; capitalize on the social nature of learning; encourage reflection. (p.103).

Assumptions of the Whole Language Model:

Naturally unfolding development.

The abovementioned prescriptions do give the flavour if not the substance of what may occur in classrooms, and are consistent with a view of child development which combines a Rousseauian perspective of naturally unfolding development with an assumption that learning to read is essentially equivalent to learning to speak. Rousseau believed that children had an innate developmental script which would lead them (though perhaps at differing rates) to competence. Thus unfettered maturation would allow the child to develop knowledge unaided (Weir, 1990). His ideas gained scientific respectability in the 19th Century when they were seemingly supported by a theory of evolutionary biology. This long since discredited theory asserted that the evolutionary journey from amoeba to human infant was replayed in every pregnancy, and the wisdom and knowledge of the parents (and of necessity, beyond) was present in the brain of the new generation. In Rousseau's view humans were, by nature, good but could be turned bad by societal interference. His argument that society should not interfere in the natural development of children generally, was paralleled by his view of the role of education. "Give your pupil no lesson in words, he must learn from his experience" (Rousseau, 1964 cited in Weir, 1990, p. 28). The whole language philosophy noted above which assigns to the teacher the role of concerned facilitator, and which decries teacher directed instruction as harmful or unproductive can be readily sourced to the Rousseauian view.

Weir (1990) is critical of the foundations and practice of whole language which she argues has led to an increase in illiteracy, and the shifting of blame for poor achievement from the school to the home. She believes that advocates of this approach have a responsibility to provide evidence for naturally unfolding development to justify the use of indirect process-oriented education. Weir considers that Frank Smith and the Goodmans have dominated educational policies without an acceptable research base for their theories. Delpit (1988) is especially concerned about the effects of progressive education on minority groups. Rather than it being supportive of personal growth she sees the approach as being disempowering. "Adherents of process approaches..... create situations in which students ultimately find themselves held accountable for knowing a set of rules about which no one has ever directly informed them" (p.287).

Reading as a natural process.

The model also assumes that reading (and writing) are natural parts of the same language process which enables the development of speech. Learning to read and write would be just as effortless and universal if the tasks were made as meaningful as is learning to talk. While the vast majority of children learn to speak with reasonable facility, a sizeable proportion of children do not learn to read well. In the USA the figure is usually put at between 20 and 25 per cent of the school population (Stedman & Kaestle, 1987). In a recent study (Prior, Sanson, Smart, & Oberklaid, 1994), 16 per cent of Year Two children in a representative Victorian community sample were considered reading disabled. One can recognize the principle of naturally unfolding development in Goodman's (1986) explanation for the disparity in ease of acquisition between speaking and reading. According to Goodman, it is the breaking down of what is naturally a wholistic process into subskills to be learned and synthesized, which causes the gulf between expertise in speaking and reading.

Lieberman and Lieberman (1990) do not accept that the fault lies with the unnecessary or harmful intervention of society through the education system. They argue that reading and speaking are

qualitatively different activities, and cannot be expected to be mastered in the same epigenetic manner. They highlight a number of differences: all humans have developed language systems but only a minority a written form; while speech has a history as old as the species and appears to be biologically driven, written codes, or more accurately, alphabets have a cultural basis and a relatively short history (about 4000 years); speech all around the world is produced in a similar fashion using a limited range of sounds, while scripts are artificial systems which differ enormously across different cultures; while speech develops merely through exposure to speech, reading usually requires formal assistance. Liberman & Liberman conclude that learning to speak and learning to read are qualitatively different. Treating the two forms of language development as similar involves a false assumption, and, they argue, the practices which derive from that assumption are part of the cause of reading failure. Stanovich (1986) agrees, and cites a number of prominent researchers who accept the characterization by Gough and Hillinger (1980) of reading as an "unnatural act" (p.396).

The induction of the alphabetic principle.

Recognizing the phonological basis of our language system is vital for it allows us to generate an infinite number of words from a limited range of sounds. Without it we would be reduced, as are animals, to a range of meanings equal to the number of distinct sounds (20-30 perhaps) we can produce. It is phonology (along with syntax) which distinguishes human language systems from other forms of natural communication. Children must have a wonderful capacity for managing the phonology of language - by the age of 6 years the average vocabulary is 13,000 words (Miller, 1977, cited in Liberman & Liberman, 1990). The key to translating this ability to reading lies in the child's understanding of the alphabetic principle, the basis of English spelling. Because script is composed of graphemes which are roughly similar to the phonemes of spoken words, children must learn how spoken language maps onto written language (Griffith & Olson, 1992). In grasping the alphabetic principle the child must have some degree of phonemic awareness (the conscious realization that words can be decomposed into discrete single sounds (phonemes), and letter/sound knowledge (Byrne & Fielding-Barnsley, 1991). This phonemic awareness helps children make sense of instruction about what sounds each letter makes in a word. The child is able to separate out those individual sounds (segmenting) when they are presented in the context of the word's other sounds. Without phonemic awareness the child is forced to memorize complete word patterns but is unable to manage novel words. As the memory demands escalate, memorizing the letter landscape will become a less and less reliable strategy, and the child will become unduly reliant upon less effective strategies such as context cues.

Research is highlighting the significance of a range of phonological processes, but there is already an enormous weight of evidence that deficits in the area of phonemic awareness are responsible for the discrepancy between the ease of learning to talk and learning to read. (Ball & Blachman, 1991; Tangel & Blachman, 1992). What makes it difficult for some children to grasp the alphabetic principle is that while written words consist of a sequence of discrete graphemes, the spoken word consists of co-articulated sounds blended into a continuous rapidly-produced stream. Some children have great difficulty with the analysis of these co-articulated phonemes. The folding together of vowels and consonants alters their individual sounds, permitting speaking rates of 10-20 phonemes per second (Liberman & Liberman, 1990) effortlessly, automatically, seamlessly, and unconsciously. Someone must have first noticed that words like "cat" and "bat" shared some similarity and that they could be represented more economically by sharing that similarity in the written form also. This was a significant linguistic discovery because it allows each phonological element to be recognized by a special shape and anyone who knew the shape and consciously understood the internal structure of words, could read. This is the discovery every beginning reader must make - unless somebody tells him or her. Whole language approaches assume that children will discover the alphabetic principle through exposure to print, and through their writing experiences. In homes where early literacy experiences include an interest in the structure of language, it is likely that children are not unduly disadvantaged by this failure to make explicit the importance of our language's structure. Unfortunately, when phonemic awareness is emphasised neither at home nor at school, children are unnecessarily placed at risk of failing at the task of reading.

While invented spelling, as used in whole language writing activities, can be a useful step on the way to phonemic awareness and literacy, a rationale which precludes corrective feedback, and assumes closer and closer approximations to accurate spelling will occur naturally, may lead to over-optimism about the utility

of the strategy. Bryant and Bradley (1985) point out that children initially read and spell words in quite different ways, and hence invented spelling activities may contribute little to reading progress. Similarly, Thompson, Fletcher-Finn and Cottrell (1991, cited in Tunmer & Hoover, 1993) found that any knowledge of phoneme-to-letter correspondences acquired through invented spelling activities did not automatically transfer as knowledge of letter-to-phoneme correspondences in reading.

Many researchers (Stahl & Miller, 1989; Stanovich, 1986; Prior, Sanson, Smart & Oberklaid, 1994; Blachman, 1991; Grossen & Carnine, 1990; Byrne & Fielding-Barnsley, 1989; Groff, 1990) consider the notion of learning by "discovery" cavalier, and prejudicial to the progress of at-risk students - those least likely to induce the alphabetic principle, and who make up the majority of the children who do not learn to read adequately. Perhaps because of the distaste for quantitative research displayed by many whole language advocates (Groff, 1990) few empirical studies have been published to support the whole language assumption that the alphabetic principle will be induced. One study (Klesius, Griffiths, Zielonka, 1991) compared a traditional basal approach and a whole language approach at Year 1 level. The basal approach did not have a synthetic phonics basis or teach phonemic awareness. The results indicated that although the whole language group achievement was lower than the traditional instruction group on all measures, none of the differences was significant. Unfortunately, those who began the year with low phonemic awareness skills remained so, and showed slower reading progress. This finding is in line with arguments that not only whole language programs but meaning-emphasis and analytic phonics-based programs which do not make explicit the alphabetic principle are ineffective for at-risk students (Chall, 1987; Bateman, 1991; Grossen & Carnine, 1990; Vellutino, 1991). "What they need to know, and what their experience with language has not taught them, is no more and no less than the alphabetic principle" (Lieberman & Lieberman, 1990, p. 72).

Can Whole Language and Phonics be Reconciled?

The problem of unsystematic and indirect teaching of phonic skills being ineffective for some students was addressed by Eldredge (1991). He compared a number of first grade programs using a whole language approach with a similar cohort using similar programs with the addition of 15 minutes of synthetic phonics. The modified program group scored significantly higher on all literacy measures after one year. To the extent that a well-designed phonics program can enable the development of the alphabetic principle, the addition of instruction in phonics should enhance the outcomes in whole language classes, and there is increasing evidence that it does so. In order for whole language advocates to adopt such strategies an adjustment to the philosophies behind their practices would be required. Thus far, however, whole language philosophy has been relatively impervious to the results of research. In fact, McCaslin (1989) warns that a major problem for the future development of whole language is its assumption that an empirical research perspective is responsible for inappropriate practice.

Ball (1993) also notes the conflict between the whole language philosophy's lack of attention to the structure of language and the consistent research on the causal link between metalinguistic awareness and reading development. In her view the pedagogical battle between code-emphasis and whole language supporters is reflective of a broader debate evident in many of the social sciences. The major debate is between those who support a reductionist, positivist philosophy of science and those who rebel against that position adopting a holistic, post-positivist, relativistic stance. In Groff's (1990) view the reading dispute narrows down to the question of what constitutes the reality of reading behaviour. To relativists, such as Weaver (1988), all empirical research is futile in determining teaching practice, because in performing the research we cannot avoid affecting the outcome, thereby confounding results. Relativists view reality as phenomenological, that is, it has no existence independent of our unique individual perspective. They tend to favour ethnographic approaches, such as case studies and classroom observation, as the appropriate means of enquiry, because those strategies do not interfere with naturally occurring processes. Empiricists view reality as "essentially cognitive transcending" (Rescher, 1982 cited in Groff, 1990), and see ethnographic research as useful for raising, rather than answering, questions about teaching practice.

In a comprehensive examination of the philosophical underpinnings of the education system in the USA, Stone(1996) decries the influence of developmentalism, which he considers pervades classrooms and teacher training institutions to the detriment of students. Stone describes the history of developmentalism as reaching back to Rousseau, and includes Dewey, Piaget, Hall, Gesell, James, and Vygotsky as major

contributors to the primacy of naturally occurring development, and to the suspicion accorded to interventive approaches that harm is the inevitable outcome of interference with the natural order.

If decisions are to be made about state-supported approaches to reading then the question of who will evaluate claims of the two sides becomes critical. Groff (1990) suggests a commission of disinterested scholars who would determine firstly whether empirical research is admissible as a valid means of enquiry. Unfortunately this would be unlikely to de-polarize the debate. Keith Stanovich (1994), one of the foremost researchers and commentators on reading, argues that the weakness of educational decision-making is its vulnerability to faddish swings, a view also supported by Stone (1996). In Stanovich's view, it is the failure of policy makers to base decisions on empirical research, and their uncritical acceptance of the glib assurances of gurus, which has led to the current dissatisfaction in the wider educational community. He proposes that competing claims to knowledge should be evaluated according to three criteria. First, findings should be published in refereed journals. If research is to be useful it must be well designed, and able to justify its findings. When peer review is part of the process of research the well-known taunt "research can prove anything you want" becomes less valid. Poorly designed studies are rejected (often to appear in unrefereed journals). Second, reported results should be replicated by independent researchers. One feels more comfortable when research findings are repeated in studies where the researchers have no particular stake in the outcome. Third, there is a consensus within the appropriate research community about the reliability and validity of the findings. This last criterion requires considerable reading across the field, but the frequency with which a particular study is cited, and accepted as legitimate, in journal articles provides one measure. While the use of these criteria cannot guarantee infallibility it does offer reasonable consumer protection against spurious claims to knowledge. For example, were such tests used over the past 15 years to determine best practice, we would never have accepted the claims that learning to read is as natural and effortless as learning to speak; or that good readers use contextual cues to guide their reading, using print only to confirm their predictions. Yet these unsubstantiated (and demonstrably false) claims were accepted and a generation of teachers pressured through initial teacher-training and subsequent Ministry sponsored in-service, to implement practices derived from them. Such erroneous practices have been especially damaging to vulnerable students - those who aren't self-sustaining, who can't afford ineffective strategies, who rely on teachers rather than their parents to educate them.

There is, however, some evidence that the sheer weight of evidence running counter to basic whole language postulates is having an impact at a policy level. In the USA the Report of the Commission on Reading, *Becoming a Nation of Readers* (Anderson et al., 1985) supported the empirical approach "The trend of the data favours explicit phonics" (p.42). In 1986 the US Congress contracted Marilyn Jager Adams to write a book about the critical elements in teaching beginning reading. Her book, *Beginning to read: Thinking and learning about print* (1990), is a milestone in that it synthesizes from a variety of fields research which impinges on reading development. These research areas include education, psychology, linguistics, neurology and physiology. Her book is potentially very influential, recommends early and sustained intervention in teaching the structure of our language to beginning readers, has been roundly condemned by whole language supporters (Goodman, 1991), but has been difficult to ignore. It at least represents a scholarly focus for debate, and perhaps, dialogue.

The Impact of Whole Language in Australia

In Australia, in 1993, a National House of Representatives Committee released a report "The Literacy Challenge", noting that in the Australian Capital Territory, South Australia and Western Australia there is a clear acknowledgment that phonics should form part of the teaching of reading. The Committee also noted that whole language has Australia-wide support and "... virtually all curriculum guidelines on primary school literacy teaching produced are based on this approach.Virtually all teachers have undertaken the inservice training course, Early Literacy Inservice Course (ELIC), which is also based on a whole language approach to learning & literacy." (p.25) While the Committee heard much evidence in support of the teaching of phonics, its recommendations did not include such an emphasis, finishing rather lamely, "The Committee accepts the arguments that there is no single correct method which will suit all children" (p.27). Their recommendations were similarly vague. "All literacy training include specific instruction in the range of teaching strategies" p.30. Interestingly, in an appended dissenting report five of the twelve members asserted that "All literacy training include specific instruction in decoding, skill acquisition and

spelling" p.64. It would seem that the pervasive influence of developmentalism described by Stone (1996) is as applicable to Australia as to the USA.

Given the degree of penetration of the Early Literacy Inservice Course it is instructive to examine it in more detail, and in particular in its views on the method and content of reading instruction.

In 1988, the Victorian Ministry of Education released the English Language Framework P - 10 "Language for Living". This document advocated a whole language approach to English teaching, and, although its recommendations were not compulsory, it was widely adopted in that State. In order to assist teachers to put the model into practice, literacy consultants from the Ministry's School Support Centres were enlisted to provide in-service teacher training. Of the courses offered the Early Literacy Inservice Course (ELIC) (1984) was the most widely promoted. A ten unit program developed in South Australia, it was designed to be undertaken by groups of teachers after school for 1/2 hour each week with an additional 1 hour per week for between-unit activities and professional reading. The ten topics were: young children learning language, observing children reading, interpreting and using running records, matching children with books, encouraging reading development, the writing process, encouraging writing development, teaching writing, making programming decisions. The unit texts provide illustrations of appropriate activities, and Unit 5: Encouraging Reading Development is of interest for its title, and for the absence of any reference to teaching. The experiences considered worthwhile are: shared book experience, listening to stories, dictating and writing own stories, frequent silent reading, responding to stories. Further encouragement for the child-centred, discovery nature of the approach appears in the same Unit booklet. "Children's reading development, like their oral language development, largely depends on their establishment of a self regulating and self improving system" (Badger, 1984, p. 19).

Whilst this description of the function of the teacher highlights one major difference between the whole language and code emphasis/direct teaching approaches, another is the role of phonic skills in learning to read.

Whole language philosophy in practice: Semantic, syntactic and graphophonic cues.

Proponents of whole language either: disparage phonics, "Phonics is incompatible with a whole language perspective on reading and therefore is rejected" (Watson, 1989, p. 132); submerge phonics, "phonic informationis most powerfully learned through the process of writing" (Badger, 1984, p.19); or argue that phonic skills are taught within the context of three systems used to extract meaning from print (Goodman, 1976). In this latter view the graphophonic system is considered a fall-back position to be used when semantic and syntactic (the other two systems) fail (Weaver, 1988). Graphophonic cues refer to the correspondence between graphemes (the symbols in print) and phonemes (the speech sounds they represent). Semantic cues involve incorporating the meaning of what is being read to assist with decoding words about to be read, that is, the next word should make sense in the context of the sentence's meaning. Syntactic cues arise because of the logic of our system of sentence construction: the next word is constrained by the rules of grammar. Syntactic and semantic cues are broadly described as context cues, as they may be used to predict a word without recourse to visual inspection. Goodman (1976) described skilled reading as a "psycholinguistic guessing game" p.259. He sees reading as a sophisticated guessing game driven largely by the reader's linguistic knowledge, and as little as possible by the print. Smith (1975) expresses this view succinctly. "The art of becoming a fluent reader lies in learning to rely less and less on information from the eyes" (p.50). It was argued (Cambourne, 1979) that the speed of skilled reading could not be accounted for if the reader looks at every word. The hypothesis was that the good reader used contextual cues to predict words initially, and then confirm the word's identity using as few visual features as possible.

Holdaway (1980, cited in Hornsby, Sukarna & Parry, 1986) provides this strategy. When word recognition is the problem readers should "(a) go back and read from the beginning of the sentence and/or read further on; (b) check the first letter or letter cluster; (c) make a prediction (an informed guess)."

The results of eye movement studies have not supported the skipping hypothesis. These studies (see reviews in Rayner, 1989; Stanovich, 1986) using modern eye movement technology indicate that skilled

readers do process all the print - they do not skip words, or seek only some features of words. Thus the techniques of contextual prediction which are emphasized in whole language classrooms, are based on an untenable hypothesis. It is unsurprising that Rayner (1989), perhaps the most notable of the researchers on eye movement studies, considers that the major failing of whole language is its lack of recognition that graphophonic cues are "more central or important to the process of learning to read than are the others" p.351. Bruck (1988) reviews research indicating that rapid, context-free automatic decoding characterizes skilled reading. In fact, the word recognition of skilled readers provides them with the meaning even before contextual information can be accessed. Rayner and Pollatsek (1987), cited in Liberman and Liberman (1990), argue that it is only beginning and poor readers who use partial visual cues, and predict, or guess, words. This view is echoed by Stanovich (1986) who refers to a significant number of studies in support, and a further list of such studies can be found in Solman and Stanovich (1992).

The second rationale for presuming that contextual cues should have primacy in skilled reading was based on a flawed study by Goodman (1965, cited in Nicholson, 1986). Goodman found a 60-80% improvement in reading accuracy when children read words in the context of a story rather than in a list format. He argued on the basis of this study that the contextual cues provided marked assistance in word identification. There has always been acceptance that context aids readers' comprehension, but despite contention in the literature over Goodman's finding concerning contextual facilitation of word recognition, his study is still regularly cited as grounds for emphasizing contextual strategies in a whole language classroom. The study was flawed in two ways. The design was not counterbalanced to preclude practice effects. That is, a list of words taken from a story was read, and then the story itself was read. Secondly, the study ignored individual differences in reading ability, so it was not possible to determine whether good, or poor, readers (or both categories) derived benefit from context. Studies by a number of researchers including Nicholson (1985, 1991), Nicholson, Lillas and Rzoska (1988), Nicholson, Bailey and McArthur (1991) have discredited Goodman's argument, and found that good readers are less reliant on context clues than poor readers. Poor readers attempt to use context because they lack the decoding skills of the good readers. Nicholson (1991) argues that encouraging reliance on contextual cues confuses children, and he expresses concern at the rate of reading failure in New Zealand where whole language is endemic. A further problem involves the accuracy of contextual guesses. In a study by Gough, Alford & Holley-Wilcox, (1981, cited in Liberman & Liberman, 1990) well educated, skilled readers given adequate time could only guess correctly one word in four from context. Schatz & Baldwin (1986), pointed out that low frequency words, and information-loaded words are relatively unpredictable in prose. Finally, psychometric studies indicate that it is not measures of semantic & syntactic ability which predict word identification facility but rather alphabetic coding ability (Vellutino, 1993). Whole language theorists would anticipate the converse being true.

Prior et al. (1994) in their study of more than 1600 Victorian children agreed that guessing is not an adaptive strategy, and that its promulgation disadvantages at-risk children. They argue that reading-handicapped children, in particular, need intensive training in phonetic analysis. This argument is also supported by numerous influential researchers (Chall, 1989; Bateman, 1991; Groff, 1990; Solman & Stanovich, 1992; Tunmer & Hoover, 1993; Adams, 1990; Byrne & Fielding-Barnsley, 1989; Ball, 1993; Blachman, 1991; Eldredge, Quinn & Butterfield, 1990; Nicholson, 1991; Yates, 1988). Whole language supporters do not accept this view.

If one accepts the empiricist position that learning to read is not a natural process corresponding to learning to talk, then the view that most language activities are equally helpful to reading development becomes doubtful, as does the related assertion that children will master reading by being exposed to a literate environment. The literature on direct instruction (Rosenshine & Stevens, 1984) provides convincing evidence that students learn to read best when the allocated time for reading is spent directly on reading activities rather than on activities once or twice removed from reading. This literature also highlights the necessity of systematic teaching, careful monitoring and continuous feedback. Thus it is not only the philosophy of the whole language approach, but the practices which derive from it which do not have adequate research support.

Practices recommended in whole language programs

In a similar vein if one accepts that the value of contextual strategies has been vastly over-rated and the

value of phonic skills similarly under-rated, then one must query the value of the classroom activities which follow from contextual primacy. Hornsby, Sukarna & Parry (1986) suggest:

(i) Teachers emphasize shared-book experience.

Nicholson (1985) criticizes this activity because it bypasses a reader's decoding problem, instead of directly addressing it. The presumption is that with the crutch provided by the shared-book experience students will be able to solve their own decoding problem. He compares this approach to attempting to teach a rat about mazes by wheeling it through the corridors in a trolley.

(ii) Teachers use Cloze activities. They are designed to encourage children to use just enough visual information, for example the first two letters of a word, to assist word prediction, and the intention is to increase reading rate without cost to comprehension. However, skilled readers perceive and use all the letters in a word to decode (it is faster and more accurate than prediction and confirmation), thus this activity is unproductive, even counter productive.

Given the whole language emphasis on deriving cues about meaning from as many sources as possible, it is unsurprising that picture books may form a part of the reading program for beginning readers. Of course, picture books have been evident in classrooms long before whole language became prevalent but have been incorporated as a useful element in a whole language program (Elic, Unit 4, 1984). Studies by Solman and colleagues (Solman, 1986; Singh & Solman, 1990; Solman, Singh and Kehoe, 1992) have cast considerable doubt on the wisdom of this strategy if the goal is to improve decoding. In fact, the presence of pictures, regardless of their salience to the words, impedes rather than assists word identification.

This finding highlights a problem with models which are philosophically rather than pedagogically driven. Just because a practice is consistent with a philosophical position does not mean that it will be effective in the classroom. It may even, as in this case, be counterproductive. Unfortunately the view of empirical research expressed by Weaver (1988) ".....it is impossible to conduct empirical research without affecting the outcome" (P.220) is common among whole language advocates, and what a teacher does can become a moment-by-moment decision based on some intuitive understanding of the needs of the immediate situation.

The ELIC program (Unit 3, Interpreting and using running records) highlights the importance of self-correction rates, and exhorts teachers to spend considerable time and energy in assessing the self correction rates of all their students regularly. Clay (1969, cited in Share, 1990) noted that good readers self-corrected errors at a higher rate (once to every three or four errors) than did poor readers (once to every eight to twenty errors). She considered high rates were indicative of good text cue integration, which in turn was a measure of reading progress. The value of this activity has been questioned by Share (1990), and Thompson (1981, cited in Share, 1990). They found that self-correction rates are confounded with text difficulty. When text difficulty was controlled in reading level-matched designs, the rates of self-correction became similar. That is, when text is very difficult one is more likely to make errors, and increase the rate of self-correction. This is true for good readers and poor readers. Hence, an increased rate of self-correction could be interpreted as indicative of too difficult text. The conclusion that there is no direct support for self-correction as a determinant of reading progress makes the activity of recording such ratings for students of questionable value.

Assessment techniques used in whole language classrooms.

Miscue analysis is a major procedure for assessing what strategies children are using in their reading. Goodman & Burke (1970, cited in Allington, 1984) were interested in a qualitative analysis of readers' errors. They were concerned only with errors which caused a loss of meaning. The number of errors was less important than the immediate impact on comprehension. Hence decoding errors such as reading "ship" for "boat" were indicative of the student using contextual cues appropriately, and a signal for satisfaction about reading progress. The Reading Miscue Inventory (RMI) they developed did not focus on the graphemic and phonemic aspects of oral reading, but children who made errors based on graphemic similarity e.g. "boot" for "boat", would be considered to be over-relying on phonic cues, and in need of encouragement to rely more on context. Given the current knowledge about reading, the interpretation of the results of the RMI is not helpful to future planning for young readers. It is now known (Stanovich, 1986) that a reader has a certain amount of attentional capacity to devote to the reading task. Good readers because of their relatively error-free, automatic, context-free decoding skills are able to devote most of

their attention to comprehension. Conversely, most of the attentional capacity of struggling readers, is used in battling the code, and focussing on less helpful strategies like context cues. The consequence of this expensive use of attention is that such students have relatively little capacity left for comprehension. The implication of these findings is that the qualitative analysis of reading errors is largely superfluous to planning. Decoding errors of whatever type are best addressed at the level of decoding instruction. Thus the student who makes errors based on contextual strategies, and the student who makes errors based on inadequate grapho-phonetic skills both require decoding instruction and practice sufficient for effortless reading at the appropriate level of text difficulty.

The final problem for the Reading Miscue Inventory is its inadequacy as a psychometric instrument (Allington, 1984). Describing Len's (1982) review of oral reading error analysis, Allington presents a number of deficiencies:

- (i) Vague definitions of the boundaries of the error categories;
- (ii) An absence of theoretical justification for the categories;
- (iii) A failure to allow for the effects of passage difficulty. When passage difficulty is controlled (i.e. similar error rates), reliance on context occurs at least as much for less skilled as for skilled readers (Allington & Fleming, 1978; Batey & Sonnenschein, 1981; Biemiller, 1970, 1979; Cohen, 1974-5; Coomber, 1972; Harding, 1984; Juel, 1980; Lesgold & Resnick, 1982; Perfetti & Roth, 1981; Richardson, Di Benedetto & Adler, 1982; Weber, 1970; Whaley & Kibby, 1981; cited in Stanovich, 1986);
- (iv) The ambiguity resulting when categorizing multiple-source errors.

The Reading Miscue Inventory has had considerable influence in instructional texts and in classrooms (Allington, 1984), and is still influential among whole language theorists (Weaver, 1988). Weaver also describes a revised version - RMI: Alternative procedures (Goodman, Watson & Burke, 1987). The rationale for the revision appears unchanged - "it is best to avoid the common sense notion that what the reader was supposed to have read was printed in the text" (Goodman et al, 1987, cited in Weaver, 1988 P. 340). Given the problems with theory, design and implications of the Reading Miscue Inventory its widespread acceptance in the education community is difficult to fathom.

Providing corrective feedback.

Teacher response to error is an area of instructional methodology in which whole language is in conflict with much empirical evidence. Corrective feedback, as defined by Kameenui and Simmons (1990) is "the instructional procedure that directs ... attention to incorrect responses and provides correct information" (P.234). It is an integral element of Direct Instruction programs (Gersten, Woodward and Darch, 1986), effective teaching principles (Yates, 1988; Good & Brophy, 1987), and considered of particular importance to students involved in special education (Hendrickson & Frank, 1993; Fields & Kemp, 1992). Whole language theorists stress the importance of students taking responsibility for their own learning and of being prepared to take risks. They also see correction as an unnecessary interruption to the comprehension process (Goodman, 1970, 1973; Kemp, 1987; Smith, 1971, cited in Fields & Kemp, 1992), and hence are less supportive of the process. This is sometimes carried to extremes when learners' errors are quite acceptable and "celebrated" (Goodman, 1986, P.47, cited in Liberman & Liberman, 1990), and further, considered "charming indications of growth towards control of language processes" (P.19). The underlying philosophy of naturally occurring development is evident here. A concern that teachers may be ignoring this important instructional strategy was confirmed in a study by Fields (1991, cited in Fields & Kemp, 1992). Of 110 primary teachers employing a whole language approach, error correction was the least used of 31 instructional practices described. In a follow up study (Fields & Kemp, 1992), 66 Queensland state primary teachers, who had received formal training on one or other whole language course (e.g. ELIC), and whose approach to teaching met at least nine of the following whole language characteristics, were invited to participate. The characteristics were chosen from descriptions by Reutzel & Hollingsworth (1988), and Slaughter (1988), cited in Fields & Kemp (1992).

1. Indirect instruction (the teacher acts as a collaborator and facilitator);
2. Child centredness (the child's level of development and readiness is considered very carefully);
3. Dialogue and teacher scaffolding (tasks involve frequent teacher-pupil discussion and, where necessary, teacher assistance and support, to solve problems which the child cannot alone

- solve);
4. An informal classroom environment;
 5. Whole language used in context;
 6. Intact literacy events (not an emphasis on substeps or specific skills);
 7. Learn by doing;
 8. The child's own writing;
 9. Authentic oral language (not controlled or modified in any way);
 10. Meaning dominated interactive discourse;
 11. Pupil-pupil collaboration.

The teachers were provided with descriptions of the oral miscues of 6 hypothetical students and asked what corrections, if any, they would provide. In the majority of cases, self-correction oriented cues were provided e.g. delaying a response, asking the child to re-read, and requesting a meaning check. The authors noted that although the content of the feedback would more usefully have been code-based rather than context-based; nevertheless, these teachers were prepared to offer corrective feedback despite their training. In their ELIC course they would have been informed that "no amount of explanation, correction, or instruction has any immediate impact on children's language because they direct what they will learn and when they will learn it" (Badger, 1984, P.16). They raise the possibility that some teachers, at least, are aware of "what works" in their classrooms, and pragmatically incorporate aspects of different models into their reading program. Vellutino (1991), in a review of reading instruction, agrees that good teachers quickly become aware of the limitations of a whole language philosophy. If this is so, then it is possible that those teachers who claim to be whole language teachers are, in fact, offering an eclectic program without the deficiencies in the purist model. Unfortunately little is known about the existence or prevalence of such classrooms, although some whole language theorists believe it would be problematic if such eclecticism occurred. Newman (1991) despaired that the theoretical and political beliefs supporting whole language have not been accepted by some teachers who may be "teaching whole language in the afternoons" (P.73). She argues that only by being thoroughly imbued with the spirit can the "moment-by-moment judgments" (P.74) needed in teaching be made appropriately. Mather (1992), like Pearson (1989), believes that good teachers will use what is effective, but is concerned about inexperienced teachers, and those who are less analytic about their practices. She sees many students in whole language classrooms as victims of "poor programs produced in the heat of intense ideological debate" (P.93).

Ultimately, it is not enough to hope that teachers can make the right decisions in the classroom despite inadequacies in their training. An approach which has been found to be fundamentally flawed must either be revised or replaced.

Vellutino (1991) and other contemporary researchers (Bateman, 1991; Liberman & Liberman, 1990; Ball, 1993; Weir, 1990; Groff, 1990; Byrne & Fielding-Barnsley, 1989; Blachman, 1991; Solman & Stanovich, 1992; Byrne, 1991; Nicholson, Bailey & McArthur, 1991; Stahl & Miller, 1989, Eldredge, 1991; Gersten & Dimino, 1993; Rayner & Pollatsek, 1989; Tunmer & Hoover, 1993) are in agreement that whole language is not a comprehensive approach to reading instruction. Given that it is not just one approach among many, but is a model endorsed and promulgated in Australia and elsewhere by government education bodies, the disparity between its wide acceptance and the vast contrary evidence is alarming. While some authors (Groff, 1991; Liberman & Liberman, 1990) find little to recommend it, others believe that with modification to its methods of teaching, and to the content included, it could be recast into a generally acceptable and comprehensive approach (Chaney, 1990; Gersten & Dimino, 1993; Heymsfield, 1989; MacGinitie, 1991; Prior et al, 1994; Spiegel, 1992). Some (e.g., Stahl & Miller, 1989) consider it a valuable introduction to reading, but of less value beyond an orientating function, while others (Ball, 1993) fear that the differences may be so fundamental to make rapprochement impossible without a change in the basic philosophy of whole language. Given the large body of evidence in support of phonemic awareness and the alphabetic principle as major determinants of reading success, it is hard to imagine that whole language can remain immune and unyielding, and still maintain credibility as a model of reading acquisition endorsed by state governments. Perhaps the reasonableness of the position taken by Foorman (1995), Heymsfield (1989), or the improved student outcomes obtained by adding code instruction to a whole language program, as described by Castle, Riach & Nicholson (1994), Eldredge (1991), Heymsfield (1992), and Uhry & Shepherd (1993) will enable the evolution of the whole language approach into a more

comprehensive and effective model, better able to meet the educational needs of the diverse group of learners in our classrooms. Certainly if one examines empirically accepted findings such as summarized by Vellutino (1991), it is difficult to accept the status quo. (a) The most basic skill in learning to read is word identification; (b) an adequate degree of fluency in word identification is a basic pre-requisite to successful reading comprehension; (c) word identification in skilled readers is a fast acting, automatic, and in effect modular process that depends little on contextual information for its execution; (d) even skilled readers can accurately predict no more than one word out of four in sentence-contexts, indicating that the predictive role of context must be extremely limited; (e) because of limited facility in word identification, beginning and poor readers are much more dependent on context than are more advanced and good readers; (f) facility in alphabetic coding is critically important to the acquisition of skill in word identification; (g) phoneme awareness and facility in phoneme analysis are critically important to the acquisition of skill in alphabetic coding. Each of these generalizations is contrary to the approach to reading instruction currently advocated by whole language proponents (Vellutino, 1991, P.442).

Newly elected conservative governments in Australia have demonstrated an increasing, if controversial, interest in the establishment of state and national testing programs. In addition, such governments have shown a distinct preparedness to examine the effectiveness of programs which compete for the scarce education dollar. It would be ironic, if in a time of decimation (in the true sense of the word) of the education system, one positive outcome was a shift towards accountability as objectively assessed by student-outcome. One of the oft-heard complaints from researchers in this field is that educational decision-making is too often driven by ideology, or uncritically accepted innovation. There may well be an opportunity now for those of an empirical bent to influence such result-driven policy makers towards educational practices with legitimate theoretical and research support. Even a cursory reading of the popular media over recent years indicates that there is a real and growing dissatisfaction with the state of literacy in Australia, and that this dissatisfaction is centered on the manner in which it is being taught in our schools. The pendulum has swung, but who is prepared to promote well-founded reform at the political level? Who is prepared to take up the issue with the decision-makers to create the structural changes necessary to rescue our system? Researchers have traditionally shied away from such overt involvement in the process of exerting influence. Yet they are an important part of an assembly which should also include teachers, parents, teacher educators, speech pathologists, school consultants, such as educational psychologists, and any other interested parties. Evidence, numbers, conviction, energy and political (and media) influence are all elements needed to create change in a system. For the sake of those not well served by the current system, who are unable to influence their predictably bleak future, it is surely time to stop fiddling around the edges of the problem. It is time to address the core issue: the manner in which we approach beginning reading instruction.

References

- Adams, M.J. (1990). *Beginning to read: Thinking & learning about print*. Cambridge, M.A: MIT Press.
- Allington R.L. (1984). Content coverage & contextual reading in reading groups. *Journal of Reading Behaviour*, 16, 85-96.
- Anderson, R.C., Hiebert, E.H., Scott, J.A. & Wilkinson, I.A.G. (1985). *Becoming a nation of readers: The report of the Commission on reading*. Champaign. Il: The Centre for the Study of Reading.
- Badger, L. (1984). Providing experiences for reading development. In Education Department of South Australia. *Early literacy inservice course*. South Australia.
- Ball, E.W.(1993). Phonological awareness: What's important and to whom? *Reading & Writing: An Interdisciplinary Journal*, 5, 141-159.
- Ball, E.W., & Blachman, B.A. (1991). Does phonemic awareness training in kindergarten make a difference in early word recognition & developmental spelling. *Reading Research Quarterly*, 25, 49-66.
- Bateman, B. (1991). Teaching word recognition to slow learning children. *Reading, Writing and Learning Disabilities*, 7, 1-16.
- Blachman, B. (1991). Early intervention for children's reading problems: Clinical applications of the research in phonological awareness. *Topics in Language Disorders*. 12(1),51-65.
- Bruck, M. (1988). The word recognition and spelling of dyslexic children. *Reading Research Quarterly*. 23, 51-69.
- Bryant, P., & Bradley, L. (1985). *Children's reading problems: Psychology & education*. UK: Basil

Blackwell.

- Byrne, B. (1991). The role of phonological awareness in reading acquisition. *Australian Journal of Reading*, 2, 133-139.
- Byrne, B. & Fielding - Barnsley, R. (1989). Phonemic awareness and letter knowledge in the child's acquisition of the alphabetic principle. *Journal of Educational Psychology*, 81, 313-321.
- Byrne, B., & Fielding-Barnsley, R. (1991). Evaluation of a program to teach phonemic awareness to young children. *Journal of Educational Psychology*, 83, 451-455.
- Cambourne, B. (1979). How important is theory to the reading teacher? *Australian Journal of Reading*, 2, 78-90.
- Castle, J.M., Riach, J., & Nicholson, T. (1994). Getting off to a better start in reading and spelling: The effects of phonemic awareness instruction within a whole language program. *Journal of Educational Psychology*, 86, 350-359.
- Chall, J.S. (1987). Reading & early childhood education: The critical issues. *Principal*, 66, 6-9.
- Chall, J.S. (1989). Learning to read: The great debate 20 years later - a response to "Debunking the great phonics myth. *Phi Delta Kappan*, 70, 521-538.
- Chaney, C. (1990). Evaluating the Whole Language approach to language arts: The pros and cons. *Language, Speech, and Hearing in Schools*, 21, 244-249.
- Delpit, L.D. (1988). The silenced dialogue: Power and pedagogy in educating other people's children. *Harvard Educational Review*, 58, 280-298.
- Education Department of South Australia. (1984). *Early literacy inservice course*. South Australia.
- Eldredge, J.L., Quinn, B. & Butterfield, D.D. (1990). Causal relationships between phonics, reading comprehension, and vocabulary achievement in the second grade. *Journal of Educational Research*, 83, 201-214.
- Eldredge, L. (1991). An experiment with a modified whole language approach in first grade classrooms. *Reading Research & Instruction*, 30(3), 21-38.
- Fields, B. A., & Kempe, A. (1992). Corrective feedback in whole language teaching: Implications for children with learning problems. *Australian Journal of Special Education*, 16(2), 22-31.
- Gersten, R. & Dimino, J. (1993). Visions & revisions: A special education perspective on the whole language controversy. *Remedial & Special Education*, 14(4), 5-13.
- Gersten, R., Woodward, J. & Darch, C. (1986). Direct Instruction: A research based approach to curriculum design and teaching. *Exceptional Children*, 53(1), 17-31.
- Good, T.L. & Brophy, J.E. (1987). *Looking in Classrooms* (4th ed). NY: Harper & Row.
- Goodman, K.S. (1979). Reading: A psycholinguistic guessing game. In H. Singer & R.B. Ruddell (Eds.) *Theoretical models and processes of reading*. Newark, D.E.: International Reading Association.
- Goodman, K.S. (1986). *What's whole in whole language*. Richmond Hill, Ontario: Scholastic.
- Goodman, Y. M. (1991). Beginning to read: A critique by literacy professionals and a response by Marilyn Jager Adams. *The Reading Teacher*, 44, 375-378
- Groff, P. (1990). An analysis of the debate: Teaching reading without conveying phonics information. *Interchange*, 21(4), 1-14.
- Grossen, B. & Carnine, D. (1990). Translating research on initial reading instruction into classroom practice. *Interchange*, 21(4), 15-23.
- Hendrickson, J.M., & Frank A.R. (1993). Engagement & performance feedback: Enhancing the classroom achievement of students with mild mental disabilities. In R.A. Gable & S.F. Warren (Eds.), *Advances in mental retardation and developmental disabilities: Strategies for teaching students with mild to severe mental retardation*. Philadelphia: Jessica Kingsley.
- Hornsby, D. Sukarna, D. & Parry, J. (1986). *Read on: A conference approach to reading*. Sydney: Martin Educational.
- Heymsfeld, C.R., (1989). Filling the hole in whole language. *Educational Leadership*, March, 65-68.
- Heymsfeld, C.R., (1992). The remedial child in the whole-language cooperative classroom. *Reading and Writing Quarterly: Overcoming Learning Difficulties*. 8, 257-273
- Johnson, B., & Stone, E. (1991). Is whole language restructuring our classroom? *Contemporary Education*, 62, 102-104.
- Kameenui, E.J., & Simmons, D.C. (1990). *Designing instructional strategies: The prevention of academic learning problems*. Columbus, Ohio: Merrill.
- Klesius, J.P., Griffith, P.L., & Zielonka, P. (1991). A whole language and traditional instruction comparison: Overall effectiveness and development of the alphabetic principle. *Reading Research &*

- Instruction*, 30(2), 47-61.
- Liberman, I.Y., & Liberman, A.M. (1990). Whole language vs. code emphasis: Underlying assumptions and their implications for reading instruction. *Annals of Dyslexia*, 40, 51-76.
- Mather, N. (1992) Whole language reading instruction for students with learning disabilities: Caught in the cross fire. *Learning Disabilities Practice*, 7, 87-95.
- McCaslin, M.M. (1989). Whole language: Theory, instruction, and future implementation. *The Elementary School Journal*, 90, 223-229.
- McGee, L.M., & Lomax, R.G. (1990). On combining apples & oranges: A response to Stahl & Miller. *Review of Educational Research*, 60, 133-140.
- MacGinitie, W.H. (1991). Reading Instruction: Plus Ça Change...*Educational Leadership*, March, 55-58
- Newman, J.M. (1991). Whole language: A changed universe. *Contemporary Education*, 62, 70-75.
- Nicholson, T. (1985). Good readers don't guess. *Reading Psychology*, 6, 181-198.
- Nicholson, T. (1986). Research revisited: Reading is not a guessing game - the great debate revisited. *Reading Psychology*, 7, 197-210.
- Nicholson, T. (1991). Do children read words better in context or in lists? A classic study revisited. *Journal of Educational Psychology*, 82, 444-450.
- Nicholson, T., Bailey, J. & McArthur, J. (1991). Context cues in reading: The gap between research & popular opinion. *Reading, Writing & Learning Disabilities*, 7, 33-41.
- Nicholson, T., Lillas, C., Rzoska, M.A. (1988). Have we been misled by miscues? *The Reading Teacher*, Oct., 6-10.
- Pearson, P.D. (1989). Commentary: Reading the whole language movement. *Elementary School Journal*, 90, 231-241.
- Prior, M., Sanson, A. Smart, D., & Oberklaid, F. (1994). *Reading disability in an Australian community sample*. Manuscript submitted for publication.
- Rayner, K., & Pollatsek, A. (1989). *The Psychology of reading*. New Jersey: Prentice Hall.
- Rosenshine, B. & Stevens, R. (1984). Classroom instruction in reading. In D. Pearson (Ed.), *Handbook of research on teaching* (3rd. ed.), 376-391. NY: MacMillan.
- Schatz, E.K. & Baldwin, R.S. (1986). Context clues are unreliable predictors of word meanings. *Reading Research Quarterly*, 21, 451.
- Share, D.L. (1990). Self correction rates in oral reading: Indices of efficient reading or artifact of text difficulty ? *Educational Psychology*, 10 , 181-186.
- Schickedanz, J.A. (1990). The jury is still out on the effects of whole language and language experience approaches for beginning reading: A critique of Stahl & Miller's study. *Review of Educational Research*, 60, 127-131.
- Singh, N.N. & Solman, R.T. (1990). A stimulus control analysis of the picture-word problem: The blocking effect. *Journal of Applied Behaviour Analysis*, 23, 525-532.
- Smith, F. (1975). *Comprehension and learning: A conceptual framework for teachers*. NY: Richard C. Owen.
- Smith, P.G. (1991). A practical guide to whole language in the intermediate classroom. *Contemporary Education*, 62, 88-95.
- Solman, R. & Stanovich, K. (1992). Information processing models. In N. Singh & I. Beale (Eds.), *Learning disabilities: Nature, theory & Treatment*. NY: Springer Verlag.
- Solman, R.T. (1986). Teaching sight words. *Set: Research information for teachers*, (2). Melbourne: ACER.
- Solman, R.T., Singh, N.N., & Kehoe, E.J. (1992). Pictures block the learning of sightwords. *Educational Psychology*, 12, 143-154.
- Spiegel, D.L. (1992). Blending whole language and systematic direct instruction. *The Reading Teacher*, 46(1), 38-44.
- Stahl, S.A., & Miller, P.D. (1989). Whole language & language experience approaches for beginning reading: A quantitative research synthesis. *Review of Educational Research*, 59, 87-116.
- Stanovich, K.E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly*, 21, 360-406.
- Stanovich, K. (1994). Romance and reality. *The Reading Teacher*, 47, 280-291.
- Stedman, L. & Kaestle, C. (1987). Literacy & reading performance in the United States, from 1880 to the present. *Reading Research Quarterly*, 23(1), 8-46.
- Stone, J. E. (April 23, 1996). Developmentalism: An obscure but pervasive restriction on educational

- improvement. Education Policy Analysis Archives [On-line] 4, 1950 lines. Available:
<http://seamonkey.ed.asu.edu/epaa>.
- Sykes, S. (1991). A whole language perspective on reading & writing. *Australian Journal of Remedial Education*, 23(2), 23-27.
- Tangel, D.M., & Blachman, B.A. (1992). Effect of phoneme awareness instruction on kindergarten children's invented spelling. *Journal of Reading Behaviour*, 24, 233-261.
- Tunmer, W.E. & Hoover, W.A. (1993). Phonological recoding skill and beginning reading. *Reading & Writing: An Interdisciplinary Journal*, 5, 161-179.
- Uhry, J.K., & Shepherd, M.J., (1993). Segmentation/spelling instruction as part of a first-grade reading program: Effects on several measures of reading. *Reading Research Quarterly*, 28, 219-233.
- Vellutino, F.R. (1991). Introduction to three studies on reading acquisition: Convergent findings on theoretical foundations of code-oriented versus whole-language approaches to reading instruction. *Journal of Educational Psychology*, 83, 437-443.
- Watson, D. (1989). Defining & describing whole language. *Elementary School Journal*, 90, 129-142.
- Weaver, C. (1988). *Reading process & practice: From socio-psycholinguistics to whole language*.
Portsmouth, NH: Heinemann.
- Weir, R. (1990). Philosophy, cultural beliefs and literacy. *Interchange*, 21(4), 24-33.
- Yates, G.C.R. (1988). Classroom research into effective teaching. *Australian Journal of Remedial Education*, 20(1), 4-9.