Can the simple view deal with the complexities of reading?
John R. Kirby and Robert S. Savage

Abstract
We review the Simple View of Reading (SVR) model and examine its nature, applicability and validity. We describe the SVR as an abstract framework for understanding the relationship between global linguistic comprehension and word-reading abilities in reading comprehension (RC). We argue that the SVR is neither a full theory of reading nor a blueprint for instruction. Nevertheless we argue that the model is helpful in conceptualising these broad skills and thus in planning for teaching and learning. We review empirical evidence concerning the SVR, suggesting that it provides a good fit to much scientific data on typical and atypical development, and variation among students across the school age range. We also indicate several areas in which we think the SVR is incomplete or in need of further empirical support. These include the way in which word decoding is conceptualised, the ways in which RC is measured, RC strategies, the role of reading fluency, reading with illustrations and second-language reading.

Key words: simple view of reading, reading comprehension, decoding, listening comprehension

Introduction
Two decades ago, Gough and Tunmer (1986) put forth what they termed the Simple View of Reading (SVR). In this view, reading comprehension (RC) is seen as the product of listening comprehension (LC) and decoding (D); thus

$$RC = LC \times D$$

In this paper, we attempt a reappraisal of the SVR. Specifically, we review what the SVR is (and is not), and how well it addresses current theory and research. We ask: is there anything missing in the SVR? How well does the SVR serve as a basis for supporting literacy acquisition for all children? Is it time for a Slightly Less Simple View of Reading?

History and context of the SVR
The SVR was proposed at the height of the whole language movement in literacy education in the United States and Canada. While the ‘reading wars’ raged, feelings were most polarised. In this rather odd ‘war’, one side (phonics advocates) argued that learning to apply phonic decoding strategies was one of the most important aspects of early reading and thus a major goal of early teaching. In contrast, a so-called ‘whole language’ position emphasised the role of natural language and the role of apprenticeship in learning how to apply this general language capacity to the specific case of reading acquisition. To some extent the SVR tried to show how each of the ‘sides’ had some value to present: the LC term indicated that all the complexities of natural language were involved in RC (thus honouring the whole language view), and the D term acknowledged the importance of ‘word-level’ processes, specifically the decoding of alphabetic print, either by the use of sounds commonly associated with letters to derive word pronunciations or by the recognition of whole words or portions of them. The SVR then can be seen as a first attempt at what is now called ‘balanced literacy’ (e.g., Pressley, 2006). Of course neither ‘side’ was content with its portrayal in the SVR: those on the whole language side probably saw too much emphasis on decoding and not enough detail on what language competence entailed. Those on the other side were perhaps more content, in that word-level processes were honoured, but these scholars would have noted that little detail was provided about the nature of decoding and the processes on which it depended. So neither side would have seen the SVR as a complete picture of reading. In one sense, this is not surprising: the SVR was not presented as a completely worked-out theory of the details of reading, or of reading development or of reading instruction. It was advertised as a simple view, after all, with the aim of providing an overall framework for understanding the broad landscape of reading. We thus suggest the SVR be seen more as a brief, abstract account of elaborate and complex phenomena. If you will, more like a postcard from your trip to China than a full presentation and analysis of your experiences in China. This does not make it right or wrong. It is still fair to challenge it, like any other scientific model, to ask what is missing and how important the missing parts are. Practitioners and theoreticians alike should also remain committed to developing the essential details (where the devil is) that are not presented within the SVR framework, to construct models of instruction and theories of the process. In this sense the model remains work in progress.
It is also important to recognise that the components of the SVR are not in themselves simple. As we indicate in the following sections, each represents a host of complex and important processes. Decoding may appear simple to some who have mastered it, but it should not to those who are learning it. LC remains complex throughout the lifespan.

**Science, reductionism and the SVR**

Before proceeding it is worth dealing with the general notions associated with scientific simplification as they are routinely misunderstood. Any scientifically oriented researcher who presents a model of any process or phenomenon, however simple or complex, attempts to simplify that process, that is, to identify its essence or core. In the social and educational sciences that researcher naturally runs the risk of being described as ‘reductionist’ by researchers who do not take a scientific approach to study. Such a critique assumes that reduction must be inherently wrong and implies that the researcher or researchers operate with a discernible naïveté concerning the phenomenon under investigation. In the call for papers on this topic (Barrs et al., 2007), the SVR was, perhaps predictably, criticised for being reductionist. The issue really is whether this reduction is *useful* or whether it misses so much about the essence of the phenomenon as to be useless or harmful. An analogy might help here. The Newtonian view of the universe might be seen as “a simple view of physics” (SVP). It does an excellent job of describing most of the phenomena of the physical world in the entire cosmos, and, as any introductory physics student will attest, is not entirely *simple*. There are several more complex views available (e.g., Einsteinian physics), but these complex models are generally too complex for most of us to want or need to understand in detail and they generally remain the province of experts. Thus, in this context, Newtonian notions underlying an SVP (e.g., actions having equal and opposite reactions) remain *useful*, even decisive, heuristics for understanding the everyday physical world.

Note that such a ‘reductionist’ view also does not for a moment mean we cannot see or understand or marvel at complexity in the physical world. The prima ballerina’s pirouette is completely governed by and mathematically modelled using Newton’s laws but we can still marvel at the beauty and complexity and intricacy of the manoeuvre. Similarly, the SVR describes the outline of the cognitive cosmos (as it were) for a reader. Yet we will most definitely still see and marvel at the literacy equivalents of the pirouette if we have our eyes open to the phenomenon.

**Proximal and distal causes of RC**

A second and related confusion concerning the SVR is that it describes the *proximal* influences on reading. Reading is a cognitive task, and thus the most important immediate (proximal) determining factors if we sit down to read a text are, according to the SVR, our cognitive skills of decoding and our ability to build a model to comprehend that text in unison. Yet the developmental paths by which these two skills emerge are definitely going to be complex. Comprehension as we sit down to read a text (this text!) may reflect a combination of the following: an innate level of verbal aptitude, early stimulation in our infancy, the degree to which we were read books as a child, our memory resources, vocabulary knowledge, our ‘meta-cognitive’ reasoning strategies and diverse, complex and cultural factors to name but a few factors (good evidence suggests all of these relate to the emergence of good listening skills by the way). A similar degree of complexity applies to the distinct pattern of skills and experiences behind the emergence of decoding. In the SVR, these latter skills are *distal*, not unimportant, but well mapped by the current components of the SVR that we can deploy in synchrony to read.

**Components of the SVR**

The SVR really has four components, the LC, D and RC terms, and the product relationship that exists between LC and D. We examine each of these in turn, and then ask what might be missing from the SVR.

**LC**

There is a well-known cartoon that shows a mathematician deriving equations on a blackboard, with the comment “here a mystery happens” at a critical step in the derivation; another mathematician is kind enough to point out, “I think you should be more explicit here”. This is not unlike the insertion of the LC term in the SVR equation. Oral language comprehension represents all of verbal ability, including vocabulary, syntax, inferencing and the construction of mental schemas; some would say it is the greatest achievement of human evolution. To be fair, Gough and Tunmer (1986) did not claim to be presenting a theory of language ability, but those who seek more explicit theory, and especially those who seek to apply that theory, will have to be more specific at this point.

Advances have been made since Gough and Tunmer’s (1986) original proposal. Kintsch (1998) has developed his Construction–Integration model, and Pinker (1994, 2002) has analysed the roles of nature and nurture in language competence. Gathercole and Baddeley (1990) have shown how verbal ability involves working memory. Researchers such as Beck et al. (2002) and Biemiller and Boote (2006) have shown how vocabulary is involved and how it can be taught. Nunes and Bryant (2006) have shown how morphology is involved and how it can be taught. Cain and Oakhill (2006) have shown some of the aspects of language ability that prevent good word readers from achieving adequate comprehension. Clearly theoretical and
applied researchers are accepting the challenge to “be more explicit at this point”, while accepting the general architecture of the LC component of the SVR.

D

An equally extraordinary amount has been learned about decoding in the decades since the SVR proposal. One ambiguity that has appeared is whether decoding refers to successful word reading, or instead to the ability to use phonic analysis (as indexed by pseudoword reading) (see Johnston and Kirby, 2006; Savage, 2006). Assuming it is the former, then decoding can be analysed into its component processes (i.e., the processes of which it is composed and those upon which it depends) as follows. At the first level below word reading, there are phonological decoding and orthographic processes and knowledge, corresponding to the two paths of the dual route model of reading (e.g., Castles, 2006; Coltheart et al., 2001). The phonological or phonetic decoding path is the one in which words are sounded out using grapheme-phoneme correspondences (GPCs); this may be the primary route in languages whose scripts are highly transparent, such as Finnish, German and Italian, but it is not by itself adequate in a script like English where the correspondences between graphemes and phonemes are less predictable. To achieve stability, some argue that larger units than the individual letter must be considered, such as the rimes of words or even entire words (i.e., Ziegler and Goswami’s, 2005, grain size hypothesis). Others (e.g., Coltheart et al., 2001) argue that children store word-specific information that can be used to read the many words in English that do not entirely follow phonic rules. Furthermore, for reading to be fast, it is probably necessary for larger units to be processed more automatically – this is the orthographic path. Evidence supports the conclusion that an SVR model with D defined as phonetic analysis alone will be less powerful than one in which D is defined as word recognition (Johnston and Kirby, 2006).

But underlying these two paths is a host of lexical and sublexical processes. For instance, phonological decoding has been shown to depend upon phonological awareness (Adams, 1990; Goswami and Bryant, 1990); researchers are now investigating the sources of phonological awareness, both neurologically (Goswami et al., 2002) and in early experience (Burgess, 2006). Orthographic processing clearly depends upon reading experience and print exposure (Stanovich and West, 1989), but some researchers are suggesting it also depends upon the cognitive skill of Rapid Automated Naming (RAN or naming speed; e.g., Kirby et al., 2003; Wolf and Bowers, 1999). It is not yet clear what RAN depends upon, but it may be the consequence of fundamental neurological processes (Breznitz, 2006) that are very difficult to alter, or it may simply be part of a general phonological processing factor. The jury is still out on these micro-issues.

There are other cognitive processes that influence decoding, but are not always seen as part of the decoding term. Most broadly, written word recognition is influenced by phonology, orthography and semantics (e.g., Plaut, 2005). The semantic component is represented by context (if any is presented), but also by word meaning and morphology. For example, knowing that the context is sailing may speed up the recognition of boat, and being aware of morphology might help recognition of a morphologically complex word such as rediscover. The inclusion of a semantic contribution to word decoding is slightly awkward for the SVR, because the semantic area would normally be seen as part of the LC term. Therefore, it may be important in considering the SVR to not see the LC and D terms as entirely independent. There is evidence that the reading of exception words (words that do not follow phonic rules, such as pint and island), requires the use of semantic and wider LC resources (e.g., Bowey and Rutherford, 2007; Nation and Snowling, 1997; 1998).

RC

If we are going to use the SVR equation to predict RC, it is important to consider what constitutes RC. Typically, RC is measured by standardised reading comprehension tests, in which students read short passages and then answer short objective questions, often under time limits. Although there is nothing inherently invalid in this practice, it is clear that such tasks do not fully capture what many consider RC to be (Paris and Stahl, 2005). To raise just a few of the issues, it has been argued that longer texts need to be employed, that deeper, constructive processes need to be measured and that more ambiguous or open-ended measures need to be involved in order to obtain a valid measure of comprehension. Researchers are using different outcome measures to explore literacy (e.g., Savage and Wolforth, 2007), and beginning to investigate whether different RC measures involve different cognitive constructs (e.g., Keenan, 2006; White and Kirby, 2007).

To our knowledge this question of alternative RC measures has not been investigated in the context of the SVR. It is possible, for instance, that some measures (short multiple choice items and texts with little context) place a greater demand on decoding than do others; however, it is also possible that longer and more abstract tests with open-ended measures put even more stress upon efficient and automatic word decoding. This is a topic in need of investigation.

Product

An important feature in the original SVR proposal is that LC and D are multiplied, not added. This technically means that it is the interaction of the two that is important, not the two individually; in other words, the effect of an increase in either depends upon
the level of the other. The product notion makes most sense at the extremes: if one has zero decoding ability, it is not possible to have any RC, no matter how good one’s LC. Similarly, one could imagine a machine with perfect ability to decode (pronounce) text, but if that machine had no comprehension processes, no RC could be said to exist. It is a bit more difficult to imagine a child with reasonable D but zero LC, but some cases of previously literate adults who experience brain injury that impairs or destroys their reading abilities in quite selective ways might qualify (e.g., Schwartz et al., 1980). The point is, however, that at these extremes, the model clearly needs to be multiplicative. It is less clear that it needs to be multiplicative in the middle, where most students are. See also the part of the following section dealing with the multiplicative nature of the SVR.

How successful has the SVR been?

The SVR is well supported by empirical evidence. The following sources of evidence are perhaps the most relevant:

(a) It is quite possible to find many children who have good decoding skills on the one hand and poor text comprehension skills on the other (e.g., Catts et al., 2003; Healy, 1982; Nation and Snowling, 1997, 1998) as well as the reverse pattern of good comprehension skills and poor decoding (e.g., Byrne and Fielding-Barnsley, 1995; Catts et al., 2003; Hulme and Snowling, 1992; Shankweiler et al., 1999). This suggests that D and RC are separable skills.

(b) Individual differences (that is to say, variability across children) in both D and LC are strongly correlated with variability across children in RC (e.g., Carr and Levy, 1996; Carver, 1997; Hoover and Gough, 1990; Nation and Snowling, 1997; Stanovich, 1986; Vellutino et al., 2007).

(c) The SVR model proves to be a good predictor of future performance in RC over the first 4 years or so of reading acquisition (Catts et al., 2003; Demont and Gombert, 1996; Johnston and Kirby, 2006; Oakhill et al., 2003; Tunmer and Hoover, 1992).

(d) There is emerging evidence of distinct genetic as well as (at least equally important) environmental influence on performance in distinct D and LC tasks, again emphasising the distinctiveness of the D and LC components as well as their necessity (Keenan et al., 2007).

Arguably, one area where the predictions of the SVR model have been less consistently validated is in the manner through which D and LC combine to predict RC. In one of the first empirical studies of the SVR, Hoover and Gough explored the components of RC in 254 children between Grades 1 and 4 (equivalent to Years 1-4 in the United Kingdom). They reported that the variation they found across children in RC ability best fitted a product (RC = D × LC) model rather than a sum model (RC = D + LC). Conceptually, this is important as the product model assumes that both D and LC are strictly necessary but that neither D nor LC are individually sufficient components of RC. On the other hand, the additive model suggests that D and LC are sufficient but not necessary for RC and thereby allows the possibility that D and/or LC could be bypassed in successful RC.

Other evidence, however, exists supporting the additive model over the product SVR model. Chen and Vellutino (1997) tested a slightly more complex statistical model that incorporated both the product and the sum of D and LC (RC = D + LC + (D × LC)) to explore the two accounts. Chen and Vellutino reported that the inclusion of a product term did not add to the power of predicting RC provided by the additive between Grades 2 and 6 (equivalent to Years 2–6). As suggested earlier, the multiplicative characteristic of the SVR may only be important at the extremes of D and LC ability.

The SVR and older readers

It is also important to look closely at the degree to which the SVR predicts the RC abilities of teenage and adult poor readers. Savage (2006) explored the performance of 15-year-olds with severe reading delays. In parallel with the results of the studies of younger children by Chen and Vellutino (1997), an additive model (D + LC) fitted the data well when either non-word decoding or text-reading accuracy was used as an index of D. The addition of the product term (D × LC) did not add to the predictive power of the model. From this view then both D and LC are involved in RC but the models did not support the necessary role for either D or LC suggested by the product model. Similar results were reported by Savage and Wolford (2007) in a study of 60 university students, the majority of whom received academic accommodations to compensate for significant reading delays. Results showed that both D and LC predicted RC well. Importantly, an additive model (D + LC) fitted the data no better than a product model (D × LC). Similar results were obtained when cumulative grade point average rather than RC was used as the outcome measure.

In general terms, then, there are reasons for believing that the combination of D and LC measures has the power to predict significant amounts of variability in reading ability in children from Grade 3 through to university students. The finding that the SVR can predict academic progress as well as reading of undergraduate and graduate students provides a powerful cue that the D and LC skills involved cannot themselves be trivial or simplistic; rather, perhaps the deceptively simple equation captures some important complexity in reading and learning right across the developmental span.
The SVR and recent alternatives

In England, the SVR model recently replaced a ‘searchlights’ model as the theoretical basis of national literacy initiatives (Rose, 2006). The latter model placed word reading under the influence of a series of phonological, contextual and orthographic ‘cueing’ systems. Such models have much popular currency but are not valid models of word reading in the light of current evidence (see, e.g., Pressley, 2006; Rose, 2006, for relevant reviews). Practitioners using the SVR should know they are using a model that most researchers internationally are also using to frame their studies. Finally, it should also be noted that the previous ‘searchlights’ model did not focus on the listening or RC of text at all, so in this sense the SVR is much more comprehensive.

Teaching, learning and the SVR

The SVR was not initially developed as a model for teaching and learning. Arguably, however, one of the attractive aspects of the SVR as a broad model for understanding reading is that it places two teachable skills, namely D and LC, centre-stage in the classroom. Such models can be contrasted with other models (e.g., those based on IQ) that have a very deterministic feel. Savage (2001) has argued that the SVR model frees up psychologists, parents, teachers and others (such as the taxpayer!) in the field from the expensive, inefficient models (e.g., Nation, 2005). It may be that teachers do not identify the former children’s learning needs readily as they may be hard to spot in the classroom, and may be masked by good expressive skills. Furthermore, children and young people are very poor at self-identifying abilities in comprehension (e.g., Savage, 2001). Good ways to assess SVR components might thus be invaluable in aiding a school’s capacity to add value to children’s literacy learning in the precise ways they really need.

What might be missing in the SVR?

Although there is a lack of research specifically addressing gaps in the SVR, we think it possible to point to several candidates. We offer the following as a research agenda for the future, though practitioners may wish to address these points before the research is done.

RC strategies

A critical difference between the LC and RC situations is that the content stays present in the latter, whereas it disappears quickly in the former. This leaves much more scope for the application of strategies, even if one has misunderstood the text the first time or missed key points. If one has not found a main idea after reading a paragraph, one can go back and look again; this is much more difficult when one has only heard the text. Strategies such as locating information, finding main ideas, determining text structure and using headings and typographical cues are either more difficult or impossible in LC than in RC. RC allows more scope for meta-cognition, because the meta-
cognition does not interfere with reception of the content. It is possible that these deliberate, taught strategies either bring something to RC that is not present in LC or even that they can help compensate for lower levels of LC.

Whether or not strategies add variance to the SVR model may depend upon how RC is measured. The short texts and timed conditions of many RC tests may undermine the possible benefits of strategies. Research is needed to examine how strategies affect a full range of RC measures within the SVR model.

**Importance of fluency**

The SVR D term does not indicate clearly how it is to be measured. Does D refer to decoding accuracy or also to decoding fluency? In virtually all of the studies of the SVR, decoding has been measured as accuracy. Decoding that is accurate but very slow may not be adequate to support comprehension. Comprehension requires that decoded words be present simultaneously in working memory, so that relations among them can be processed (Kirby, 2007). If decoding is slow, then key information will have decayed by the time later information is decoded; if decoding is also effortful, in the sense that conscious thought has to be devoted to it, then fewer working memory resources will be available for comprehension processes. There is need to ensure that children’s decoding is fast and accurate, and there is need for research addressing fluency within the SVR model.

**Reading with illustrations**

Although both LC and RC can occur in the presence of relevant illustrations or related contextual clues, it is possible that the illustrations could be more potent in the RC situation. First, if the illustrations have been selected to depict challenging words or difficult relationships, they could compensate for weak decoding. Second, illustrations such as graphs or flow charts may function as main idea summaries, to highlight the key elements of a text; in this sense they may compensate for weak LC skills. All of this can happen in LC situations, of course, but it seems less likely to occur there, less likely to take decoding challenges into account and less likely to be planned to focus on learning. This point is somewhat speculative, but it does suggest that we need to investigate the compensatory power of illustrations and other text adjuncts.

**Second language readers**

Children reading in their second, less strong language are another area of concern. Such readers are likely to have weak decoding skills in the second language (L2), perhaps weaker than those in their first language (L1). They are very likely to have weaker LC skills in L2 than in L1. To what extent does the SVR model work in this situation? Does relatively high LC in L1 compensate for lower LC in L2? And can L1 competence compensate for lower decoding skills in L2? There are two points here. First, some L1 word-level skills may affect L2 decoding, even after taking account of L2 word-level skills (Deacon et al., 2007), and second, L1 LC may compensate for lower L2 LC. Both of these issues need to be investigated within the SVR.

**Conclusions**

Based on this review of the SVR, we conclude that it serves a useful function as a broad framework within which to conceptualise RC. By emphasising the importance of both LC and D, it sets the broad agenda for educational efforts. There are several outstanding issues that SVR research must address, including the four we listed: the role of strategies, fluency, illustrations and second language in RC. But most importantly, we need to emphasise what the SVR is not. Continued efforts are required to articulate a complete theory of the cognitive processes involved in reading. Similarly, instructional programme development (in terms of both curriculum and teacher education) is required to develop evidence-based approaches that have the potential to optimise literacy performance for all children.

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Reading on Screen  
Research Report  
Eve Bearne, Chris Clark, Annette Johnson, Penny Manford, Marilyn Mottram and Helen Wolstencroft with Rosemary Anderson, Nikki Gamble and Lyn Overall

This research was prompted by current concerns about changing reading habits resulting from new technologies, and how the skills needed for reading on screen can be included in the reading repertoire. With support from QCA, the Reading on Screen research project examined on-screen reading in different curriculum areas with pupils aged 5 to 16 in four different parts of England. The report includes information about children’s out-of-school reading experiences, detailed observations and interviews with pupils of different ages, examples of classroom practice in teaching on-screen reading and a discussion of some of the implications for future classroom practice and assessment.

Price £5.50  
ISBN 978 1 897 638 42 2