Sesotho and isiZulu Reading Project Study Materials

Module 7:
An overview of approaches to teaching reading: the role of research evidence

UNIVERSITY OF JOHANNESBURG

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Contents

The purpose of this module

The purpose of this module is to give student teachers an evaluative overview of the main characteristics of different approaches to reading instruction, a brief history of how they came about, and to identify the criticisms that have been levelled against them. The focus is on two main types of approaches to teaching early reading, namely the Whole Word and Whole Language approaches on the one hand and the Phonics approach. The overview is structured in terms of an evaluative framework derived from scientific research and the role that evidence plays in research.

Research repeatedly shows that what teachers do in their classrooms, how they do it and the resources that they use matter (Machin, McNally & Viarengo 2018). Teaching is not just a 'calling' or an 'art'. In this age of education reform and accountability, teaching is also a 'craft', a profession that relies on skill and expertise relating to content knowledge, pedagogic knowledge and knowledge about curriculum requirements. Accordingly, this craft and professional knowledge must keep abreast with current knowledge in the field and be integrated with academic and scientific knowledge derived from research related to specific teaching fields.

The knowledge gained from this module will enable student teachers to identify the different (and often opposing) viewpoints on teaching reading and to become aware of the important role of research evidence in adjudicating claims made about 'what works' and 'what does not' in early reading instruction in different educational contexts. It will also help student teachers to avoid the pitfalls of applying inefficient approaches or using methods in the classroom that may not be beneficial to all children learning to read.

Outcomes

After studying this module student teachers should be able to:

- identify and describe some of main principles underlying scientific research;
- show familiarity with all the factors (both internal and external to readers) that make reading a complex phenomenon;
- identify and describe the two main types of approaches to reading instruction and their main characteristics;
- describe the main criticisms levelled against these approaches and how research evidence supports or challenges their claims of effective practices in early reading instruction;
- show familiarity with areas that await further research in the South African context.

What literacy teaching standards are covered?

The list of literacy teacher standards that are applicable to reading teachers in South Africa can

be downloaded from: *https://www.jet.org.za/clearinghouse/projects/primted/standards/literacy-teacher-standards/literacy-teacher-standards-2020-1.pdf*

These knowledge and practice standards relate to the knowledge of literacy teaching and decoding that graduate teachers need to have to teach learners to read and write. There are 21 standards in all. This module covers two of the standards (or portions of them) in particular, as indicated below. However, because this is an overview module, all the knowledge and practice standards are applicable in this module, especially those relating to foundational reading skills (the 'Big Five'). (The numbering of these standards below is not sequential, as only those standards applicable to this module have been selected from the list.)

8. Demonstrate knowledge of theoretical and research-based components of reading and writing teaching through the phases and grades (including its cognitive, linguistic, and socio-cultural foundations and the processes and concepts involved).

8.1 What learners need to be able to read and write, and why, within and across the relevant grades and subjects, can be described.

8.2 A broad understanding of the concepts, curriculum, and pedagogy of literacy teaching can be articulated.

8.3 A coherent evidence-based understanding of the teaching of reading and writing that guides their approach and practice can be articulated.

8.4 The broad continuum of reading and writing development can be described.

8.5 A variety of strategies to teach, assess and support learners' development across the continuum can be identified.

9. Shows understanding of the need to teach all the components of reading and writing in a purposeful, systematic, structured, and integrated way.

9.1 An outline of a systematic, structured, and integrated approach to learning to read and write teaching programme can be described.

9.2 Awareness of the need to make explicit to learners the purpose and functions of what is being taught is exhibited.

9.3 Awareness that a purposeful, systematic, and structured approach also incorporates pleasure, play and fun in learning is shown.

9.4 How literacy activities at the word, sentence and whole text levels contribute to meaningful reading and writing can be described.

9.5 Ways of creating a classroom environment that emphasises reading and writing as meaning making processes are outlined.

Unit 1: A framework for assessing and understanding key factors affecting early reading: principles underlying scientific research

Introduction

Research shows that the approaches and methods that teachers use in their classrooms matter, both for literacy and for learning outcomes more generally (Machin, McNally & Viarengo 2018). Some approaches and methods are claimed to be more helpful and effective for learners than others, but how do teachers really know which are the most effective approaches?

Teachers sometimes teach in the way that they were taught when they were in school (*This is what we've always done)*; they do what they have always done and do not question their beliefs, behaviour or practices. Often, teachers use methods that they were taught during their teacher training (*This is what we were told to do*), without being aware that the method may be outdated, or lacks research evidence to support it, or that it may not in fact be a particularly effective one for the particular context in which the teacher finds him/herself. Sometimes teachers are taught different approaches during their training and encouraged to 'be creative', the assumption being that they can 'pick and choose' the methods that seem to work for their classroom; they thus use methods that 'seem sensible' and 'feel right'. Teaching is a profession that is accountable to the public (to learners, parents, education stakeholders, the country in general), yet trainee teachers are seldom taught how to make sound judgement calls about approaches that lead to *validated* instructional practices.

These days there is often much talk about the importance of research-based evidence in education practice, but what does this really mean? What does it mean for an approach to be effective? Who gets to judge what is effective, and how is effectiveness measured? Researchers and practitioners in education agree that effective early reading instruction is essential. However, not everyone agrees on how exactly to teach children to read and unfortunately student teachers are often caught up in the debates and crossfire, without having a clear idea of how educational disputes are resolved scientifically.

In this unit we look at some of the differences between the way 'things are done' in our everyday lives and the way 'things are done' in the world of scientific research, and we identify some of the principles that underpin research-based evidence in education practice. But first, we take a brief look at some of the dominant approaches to literacy and reading instruction.

A brief overview of approaches to reading instruction

Everyone agrees that comprehension is important because that is what reading is all about, but not everyone agrees how best to teach young learners to become comprehending readers. The debates about reading instruction usually centre around reading instruction *in the early years*. Over the centuries a variety of ways of teaching reading to young children have been used. Most writing systems (including the African languages, English and Afrikaans) use an alphabetic code and the debates have revolved around how and to what extent the code should be taught – or, surprisingly, whether it should be taught at all. The different views can be divided into two main types of approaches: a **holistic approach** that privileges meaning above all in reading and focuses on children reading whole words (as in the Whole Word approach or assimilating 'authentic' (i.e. real) texts (as in the Whole Language approach), and a **componential approach** that emphasises the importance of teaching the details of the alphabetic code (phonics) so that children can read words. These have also been described as top-down and bottom-up approaches respectively. (Although there are differences between the Whole Word and Whole Language approaches, we have grouped them together in the discussions in this module because they are both top-down or holistic approaches as opposed to the phonics approach which is a bottom-up or componential approach.) These basic types of approaches also reflect broader philosophical and epistemological views of the world, the nature of knowledge and the methodological tools used for investigating phenomena.

Proponents of the holistic view (e.g., Goodman, 1967, 1986; Altwerger et al. 1987) contend that the communicative use of language is primary, and that language learning occurs through authentic communication, progressing from whole to part and from general to specific. Because language is the medium through which reading occurs, the assumption is made that "what is true for language in general is true for written language" (Altwerger et al. 1987: 145), and that literacy instruction should be modelled on language acquisition. Pedagogically, these views translate into the Whole Word and Whole Language approaches to reading, where reading is not broken into constituents but where the focus is on meaning and on recognising whole meaningful chunks of language. In Goodman's (1967) 'psycholinguistic guessing game' view of reading, readers are seen to sample the text and guess at words from the context, using whatever semantic, syntactic, visual or graphemic skills they have at their disposal. Holistic approaches to reading align themselves with child- and meaning-centred views of learning and teaching, the assumption being that children will learn to read naturally through immersion in authentic reading and writing tasks where the focus is on meaning. This approach will be examined more closely in Unit 2.

At the same time as the Whole Language movement was gaining popularity from the 1970s onwards, constructivist views of learning, literary theory and social and cultural anthropology became influential in education and the humanities (Alexander & Fox 2004). These approaches embrace a socially constructed epistemology, where knowledge is viewed as local or contextualised. Learning is not seen as an individual, cognitive-linguistic process, but primarily

as a socio-cultural, collaborative experience in a particular context and at a particular time, and determined by power relations within the social and political context (e.g. Street, 1993; Gee, 2004). Thus, reading is seen to be a human activity that is socially and politically embedded, and different literacy activities are enacted by different communities with varying power dynamics. These approaches favour social, ethnographic and other qualitative methods of research to study a particular phenomenon in different communities in space and time. Examining specific linguistic or cognitive competencies underlying reading is not typically done in these studies, since the focus lies on the social aspects of reading. These studies also often involve small numbers of participants, since the focus is on richness of detail relating to individuals from a particular context rather than large numbers of participants. Such research methods are useful for 'deep dives', where aspects of a phenomenon can be examined closely in terms of behaviour or attitudes. However, claims about trends or patterns in the larger population cannot be made from small studies.

In contrast, the componential approach views language and reading as a set of "distinct capabilities which can be isolated for inspection" (Koda, 2007: 3) but which together produce a meaning-making system. Here the focus is on how all the linguistic and cognitive subcomponents develop and interact when oral or written language is processed for meaning construction. The phonics approach to early reading is typical of componential views of language and meaning-making. Reading is investigated as a specialised aspect of human cognition and neuroscience (what happens in the brain). There is thus a focus on the structure and processes of the human mind and how the brain works, the way knowledge is organised, modified and stored in the mind and the roles that memory, the allocation of attention, automaticity and inferencing play when we read texts. Attention is given to the components that make up a complex system, what role the components play within the larger system, how the components develop and interact with one another, and how external conditions (home, school, community, socioeconomic and text-based factors), input and experience affect the system and its development. Because it is difficult to distinguish patterns from randomness in data without the aid of statistical tools, this approach tends to favour quantitative methods of investigation. In such studies, different aspects of language or literacy are measured and assessed across large numbers of participants. Precision and attention to detail in the reliability and validity of measuring instruments are important, and other factors (such as age, grade, socioeconomic indicators, etc.) can be included in the data analysis so that results reflect trends or patterns within and across different groups in terms of age, grade, language, orthography, etc. The phonics approach is aligned with the componential view of meaning-making in written language, which has a long history of quantitative research (examined more closely in Unit 3).

Basically, the Whole Word and Whole Language approaches argue that children learn to read by focusing on meaning in written language: they do this by reading whole words (since words convey meaning) and by being read stories by a caring adult who guides them in making meaning of the text. In contrast, the Phonics approach argues that although meaning is the goal of reading, children first need to learn how the code works and they do this by (initially) sounding out the individual

letters/graphemes that make up words and that this requires explicit instruction of the alphabetic code and how it works. These differences have led to endless debates about how early reading should be taught, and whether or not phonics should be incorporated into the method of teaching reading – and if so, how and what kind of phonics should be taught. The debates were often so bitter and acrimonious during the 1980s and 1990s, especially in English-speaking countries, that they were termed the 'reading wars'.

Given all these different arguments and approaches, it can be difficult for teachers to know which one is appropriate and whether it is effective in the classroom. African language teachers may also feel that many of these debates relate to English and are therefore not relevant to teaching reading in African languages. However, it is important to bear in mind that (i) reading is both a cognitive/neurolinguistic phenomenon as well as a social, communicative phenomenon, (ii) all children, despite differences in language and culture, have the same brains, and that (iii) reading in an alphabetic orthography is largely similar, irrespective of language differences. These debates are thus relevant to all teachers who teach reading in a language that uses an alphabetic code. Furthermore, in order to equip teacher trainees to make informed decisions about how they will teach reading, it is important to make them aware of the basic principles underlying science and research, and how these principles provide a systematic framework of evaluating knowledge claims about 'what works' in early reading instruction.

How do we make decisions about what works in relation to reading theories?

In the 21st century we are bombarded with information (and misinformation) in the mass media, on the Internet and on social media. The problem in the 21st century is not the lack of information but too much information, making it difficult to differentiate what is real and reliable new information from what is inaccurate, biased and misleading. Exposure to so much information makes people susceptible to fake news, gimmicks, quick fixes and ideological rhetoric. How do we systematise and evaluate the information we read? As Stanovich and Stanovich (2003: 5) argue, "Our problem is not information; we have tons of information. What we need are quality control mechanisms" that provide a framework for adjudicating knowledge claims and disputes across disciplines. Knowing the basics of how science and research function is important not just for becoming a professional teacher but also for becoming a critical consumer of information in general.

As human beings, we are naturally inclined to make judgements, evaluations and choices about people, things, events, stories and explanations in our everyday lives. We do it all the time and we like to think that we do so in a reasoned and rational manner. However, our thinking, reasoning and judgements are influenced by our upbringing, experiences and values, by socioeconomic and cultural factors, and by gender, religious and political beliefs prevalent in our broader society. We are often unaware of how our judgements are influenced by such factors. We are also influenced by inherent genetic factors. For example, consider the lines in the figure below. Which one seems the longest?

At first glance, our visual system tricks us into believing that the line in C is longer than the others. But in fact they are all of equal length – the shorter 'arrows' at each end deceive our eyes into thinking that A is the shortest and C the longest.

Figure 1: Visual bias

Similarly, our visual system tolerates changes in size, shape or direction, which means that any object we look at remains the same whether we see it from the right, the left, the top or the bottom. This is referred to as ***the invariant principle***, and it has helped humans survive for thousands of years! Thus, a predator remains a predator whether we see it coming from the left or from the front, and a chair remains a chair whether it is upside down or not, as shown in Figure 2.

Figure 2: The invariant principle in object recognition

When children first start learning letters, they often invert their direction, writing ɑ as ɒ, or they confuse b with d or p, or h with k, etc. There is nothing wrong with these children nor are they dyslexic. Instead, they are simply following the invariant principle with letters too. This tendency usually disappears after the age of eight years. Learning about the alphabetic code 'overwrites' the invariant principle as children learn that letters are *not* invariant – i.e., a letter always takes a certain shape and direction, although the font and upper- and lower-case letters may change: b B 𝔅 b b ♭ B 𝐁 ℬ b.

There are thus visual, cognitive and social biases and prejudices that influence human thinking and reasoning, many of which are subtle and which we may not be aware of. It is difficult to eliminate these biases completely since researchers are human after all. For this reason, scientific research attempts to minimise these biases. As Goldacre points out, "The very core of why we do science (is) to prevent ourselves from being misled by our own experiences and prejudices" (Goldacre 2008, p xii.). To minimise our own 'experiences and prejudices', scientific research tries to put in place a series of 'checks and balances' that serve as principles or guidelines for research.

Principles underlying scientific research

In trying to explain the world around us, the world of science tries to minimise the flaws in human behaviour and thinking by setting up a framework of principles according to which researchers can observe the world around them and provide reasoned arguments and explanations for 'how things work' in a systematic manner. Any claims about the world, people, human behaviour or 'how things work' must be supported by reasoned argumentation as well as evidence that supports the claims. This framework of principles attempts to reduce subjectivity and to make research procedures and conclusions transparent, ethical and open to public scrutiny, thereby reducing biases and flaws in human observation, argumentation and analysis. Springer (2010) highlights some of the principles in scientific research that are applicable also to the education context, serving as a system of checks and balances or 'quality control mechanisms':

- **Empirically grounded: S**cientific knowledge is grounded in observation or data. Claims and hypotheses must ultimately be testable or answerable to criteria of transparency and credibility.
- **Conditionality: S**cientific knowledge is always open to change and revision. Older theories may be abandoned as new evidence and new knowledge comes to light. (Hundreds of years ago humans believed that the sun revolved around the earth. This knowledge changed when new evidence from astronomy showed that the earth revolves around the sun.) Existing theories may also be modified to accommodate new evidence.
- **Precision:** Concepts must be clearly defined, and arguments must be logically set out. If quantitative measurements or assessments are used, they must be precise, reliable and valid. If qualitative research is undertaken, it must be credible and trustworthy.
- **Objectivity:** A researcher's background, interests, integrity and values will influence their approach and interpretation of information. Because objectivity is an ideal, subjectivity in research must be constrained or minimised as far as possible. This can be done by adhering to the principles underlying scientific research. Transparency in research is also an important part of constraining subjectivity. There must always be a clear audit trail of what is done, why it is done, how it is done, how conclusions were reached and of ethical considerations pertaining to the research. Conclusions reached should be based on observed data, not on one's own preferences or experiences.
- **Replicable:** Replication (or duplication) in science refers to the need for repeating similar research in different contexts in order to see if the same results or trends are obtained each time. Similar findings must occur in other studies (in different contexts, using different participants) before the results can be widely accepted. This applies particularly to quantitative research where trends or patterns are identified. Replicability is important for establishing what is generic and what is language or context specific in reading. For example, phonemic awareness and letter-sound knowledge have been found to be important in early reading across various languages, alphabetic orthographies and education contexts worldwide, indicating a general pattern in early reading development.

Specific variations within this general pattern may occur, but these do not invalidate the general pattern.

- **Converging evidence**. There are competing theories in all domains of study. Problems in science are seldom solved with results from a single study. Results from a single study seldom refute all previous knowledge. Instead, theories find traction when results from many studies are similar, or when studies *across different contexts* show similar findings (they have been replicated) and point in the same direction. As Stanovich and Stanovich (2003: 15) argue, in scientific research attention must be given to "where 'the preponderance of evidence' points". Replication and converging evidence go hand in hand.
- Scientific studies need to be **blind peer reviewed** or subjected to other kinds of independent scientific evaluation before they can be published and appear in the public domain. Individual researchers form part of a larger scientific community where they are accountable to transparent research conventions that serve as 'checks and balances' for monitoring the transparency and accuracy of procedures and methods of data collection, analysis and interpretation, which form the basis of scientific evidence.
- **Theoretical motivation:** A theory serves to organise, explain, interrelate and make claims or predictions about phenomena. 'Facts', results and observations need to be organised and interpreted within a coherent theoretical framework. If the evidence does not support the claims, the theory needs to be discarded or modified to accommodate new findings.

Scientific theories (or models) are basically explanations for how things work in a particular domain. Theories are not necessarily true just because a book or journal article says so or by virtue of them having been formulated by a clever scholar or by someone one likes and admires. To act in this way is to make judgements by appealing to authority, not by judging the merits and demerits of a particular theory and the evidence that underpins it. These guiding principles do not by any means make scientific research error-free, but they do attempt to minimise flaws and validate knowledge claims in systematic ways. They serve to check the validity of ideas and methods so that claims are not taken for granted; no wild, inaccurate or unsubstantiated claims or generalisations should be made. The ideas and methods should be validated by evidence, and the procedures whereby the evidence was obtained must be transparent and credible.

Each domain of research (e.g., medicine, psychology, geology, anthropology, education, or reading) identifies and defines key concepts relevant to a phenomenon, explains the role that these constructs play in the phenomenon and how they are related to other constructs. Ideally, any claims made by a theory must be supported by evidence. What constitutes evidence is determined by principles guiding research methodology and the way in which data is gathered and analysed and how conclusions about phenomena are drawn. Information and data about the phenomenon under study is collected through systematic observation, either by means of quantitative data (using numbers and statistics to detect patterns), qualitative data (using the researcher's own powers of observation and analytic skills to explain what is going on), or mixed

methods (using both quantitative and qualitative data to get a comprehensive understanding of what is going on).

The principles apply equally to quantitative and qualitative methods of research, although they may differ somewhat in how they are applied. Quantitative and qualitative methods serve different functions and provide different perspectives on a phenomenon, depending on what a researcher wants to examine and from what perspective. In quantitative research, concepts such as reliability and validity are important for maintaining rigour in research, whereas in qualitative research principles such as trustworthiness, dependability and credibility are important for maintaining rigour (Merriam 1998). Both quantitative and qualitative methods are important for understanding a phenomenon, and they should be viewed as complementary, not oppositional. Quantitative data and statistical tools are important for detecting patterns in data. It is difficult to distinguish patterns from randomness without the aid of statistical tools. However, qualitative research can probe a topic more deeply from a particular angle in a way that quantitative research is unable to.

Some issues lend themselves more easily to being examined quantitatively or qualitatively. For example, if research is undertaken on people's views about life after death, there is no way *that we can currently* provide evidence that there is/is not life after death. This is currently a matter of belief. However, to examine this topic scientifically a researcher could collect quantitative data on people who have/do not have such beliefs, and what kinds of cultural, religious, personal or socioeconomic factors are associated with such beliefs, thereby identifying underlying patterns in the phenomenon. Alternatively, a researcher could approach the topic using qualitative methods (such as one-on-one interviews, focus groups or case studies), to probe experiences and views more deeply about what people believe about life after death. Both quantitative and qualitative research can provide insights into the topic, and both are needed to advance knowledge.

In sum, scientific research does not assume one particular theoretical position, and researchers do not use only quantitative methods or come from a particular country or continent. Although some of these scientific principles emerged from a Western context over the course of several hundred years, similar principles have also occurred in philosophical traditions elsewhere in the world. These principles have merged into a more formal and clearly explicated international framework in the modern world that has stood the test of time and guides researchers all over the world, irrespective of their culture, race or religion.

Rhetorical devices used in debates

It is also important for teacher trainees to recognise when particular rhetorical devices or strategies are used to argue a particular point in favour of one view over another. There are many such devices (they are also used in literature and extensively in politics), but only three such devices are discussed below.

The straw man argument: This occurs when a person attacks or dismisses a position by

distorting or misrepresenting the theory. The name comes from the military practice of training soldiers to attack an enemy by making rough models of the enemy from straw. In debates, the 'straw man' is not the real issue under discussion; instead, it is used as a ploy to discredit the opposing view, to delegitimise a position by making an argument that the opposed position has never actually made themselves.

The red herring argument: In times past, when dogs followed a scent during a hunt, a particular type of fish called a red herring was supposedly used to rake over the tracks of the animal being hunted. This was supposed to disguise the scent so that the dogs could not track the animal. A red herring argument is thus one that deliberately distracts or misleads people away from a relevant issue and leads them to a false conclusion. (This device is often used intentionally in detective or mystery stories when a writer deliberately plants a clue that misleads readers or the audience into believing they know who the culprit is and ignoring other clues!)

The ad hominem argument: The Latin words *ad hominem* mean 'to the person'. This strategy is used when arguments based on personal issues (e.g., race, gender, religion, socioeconomic or geographical status) are used to criticise an approach rather than logical arguments or evidence relevant to the approach. In other words, a person's character or attributes are attacked rather than arguments or evidence pertaining to the theory that they support.

The use of new technology in scientific research

It is also important for teachers to be aware of evidence that new technology has revealed about reading. Although we can observe certain external behaviours during reading by watching readers or listening to them read, by noting different attitudes to reading, by observing how people from different socioeconomic or sociocultural groups practice literacy, and by documenting how texts and text genres differ in their structure, purpose and language use, much of what happens during the reading process happens inside our heads and is invisible to the naked eye. What we think we see might not necessarily be what is actually happening inside a reader's head, and because brain processes happen very rapidly, we might miss vital information that is not visible to the naked eye.

Rapid advances in technology have enabled us to see things that were previously hidden from view. In recent decades increasing use is being made of evidence provided by neuroscience (Hempenstall 2021). McCandliss (2021) describes the field thus:

> *The area of science often referred to as brain research typically includes neuroscience studies that probe the patterns of cellular development in various brain areas; and brain imaging techniques, with the latter including functional MRI (fMRI)[1] scans and positron-emission tomography (PET) scans that allow scientists to examine patterns of activity in the awake, thinking, human brain.*

[1] Functional magnetic resonance imaging (fMRI) measures brain activity by detecting changes associated with blood flow in specific parts of the brain. This technique relies on the fact that brain blood flow and neural activity are related. When an area of the brain is in use, blood flow to that region also increases.

These brain imaging techniques allow scientists to examine activity within the brain as a person engages in mental actions such as attending, talking, listening, learning, remembering, reading, etc. They provide spatial (where in the brain) and temporal (how fast) information, enabling us to see which parts of the brain are engaged in various activities and how fast information is processed. The speed of brain activity during particular tasks is measured in milliseconds (ms). Figure 3 shows various images of brain activity and neural networks that are not visible to the naked eye.

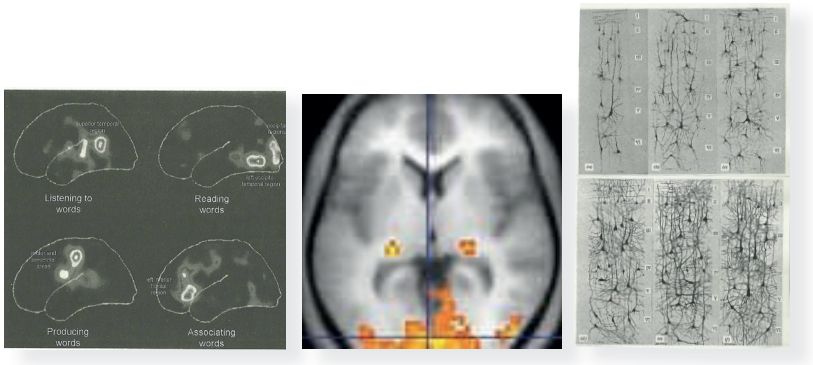

Figure 3: Images of brain activity and developing neural pathways

Since the 1970s, eye-tracking technology has also provided a window into the human mind from which inferences are made about how the mind processes information. When reading in alphabetic writing systems, our eyes must move along a straight line (usually from left to right) without deviating up or down to the lines above or below. When we reach the end of a line, our eyes must make a reverse sweep back to the beginning of the next line. Our eye movements are jerky, and jump from one word to the next. Eye tracking devices enable us to follow these eye movements in great detail and show what the naked eye fails to see.

Eye-tracking devices use a high-speed camera that takes multiple pictures of the eyes in quick succession and determines the location of the gaze of the eyes on a text. Software linked to the device processes the results and reconstructs a dynamic picture of the eye movements, indicating which words are attended to, how much processing time different words require, in what order words are read, whether lines are skipped, etc. Figure 4a below shows what an eye-tracking machine looks like, while Figures 4b and 4c show the reconstructed images of what a reader's eye movements look like while reading a text (4b) and a webpage (4c).

Figure 4a: An eye tracker

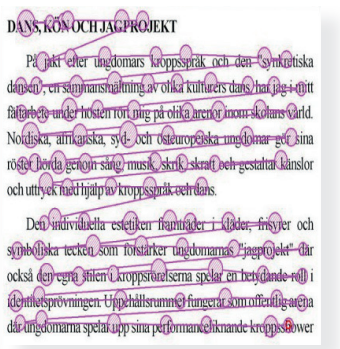

Figure 4b: Eye movements on a text

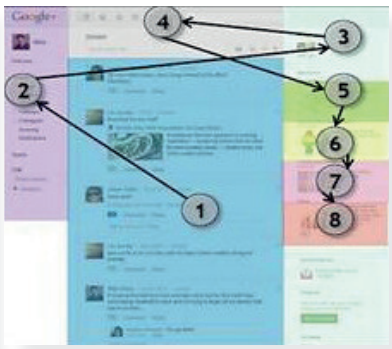

Figure 4c: Eye movements on a webpage

Technological advances in the accuracy and high-fidelity detail of eye trackers increase all the time. Some common terms used in eye-tracking research include the following:

- **Fixation:** Our eyes pause briefly on a word (about 200-300 milliseconds (ms)) depending on the length of a word, its frequency and its thematic importance. See the coloured circles in Figure 4b above.
- **Saccades:** These are quick movements between fixations. They last about 30ms in fluent reading. (See the thin lines linking the fixations in Figure 4b.)
- **Refixations** are additional fixations made before a reader leaves a word and moves on to the next one.
- **Regressions** occur when a reader backtracks from right to left to a previously read word or line and fixates on it anew. This can occur when a reader does not understand part of a text and skips back to check. It can also occur when an unfamiliar or low-frequency word occurs. Weak readers regress more often than skilled readers.

Converging evidence from eye-tracking studies across languages and writing systems has increased our knowledge of how novice, good and weak readers' eye movements differ when they read, how the difficulty of a text can affect eye movements during reading, and how eye movements may differ across languages, depending on the orthography.

In sum, new technology in scientific research during the past few decades has provided new evidence and understandings of how the brain works during reading. The domain of reading research has benefitted enormously; we now know far more about the spatial and temporal aspects of brain activity and eye movements during reading (Poldrack & Sandak 2004; Dehaene 2009; Seidenberg 2017; Hempenstall 2021). Theories of reading in the 21st century need to take cognisance of these findings.

Global education reform initiatives

Several scholars have pointed to the tendency in the past for education disputes to be adjudicated

by broader sociopolitical trends rather than by evidence deriving from scientific research (Buckingham et al. 2013; Kilpatrick 2015; Seidenberg 2017). "Educators have only recently attempted to resolve educational disputes scientifically, and teachers have not yet been armed with the skills to evaluate disputes on their own" (Stanovich & Stanovich 2003: 5). Views on learning in general (such as discovery learning and constructivism) have often been applied to learning how to read, without taking into account differences in processes and skills involved in acquiring and using knowledge generally (in oral language) versus in specific domains (written language), or the nature of abstract representational systems (such as alphabetic writing systems). Views of reading were often espoused by scholars who were general educationists but not reading researchers familiar with the empirical evidence from decades of reading research. Only recently has evidence-based practice in the education space come to be valued and applied. One of the reasons for the change in attitudes as to what works in classrooms comes from reform efforts in global education.

Organisations involved in global educational issues around the world such as UNESCO (United Nations Educational, Scientific and Cultural Organisation), World Bank and the World Education Forum have focused on issues of access to and quality of education. Their work is premised on the belief that in the modern world, basic education is a human right and the recognition that education is central to the economic, social and political development of countries across the world. During the 1980 and 1990s much of the global education reform efforts were focused on improving children's **access** to education, especially in developing country contexts. This resulted in many countries attending to education infrastructure, building more schools and training more teachers. By 2015, the number of out-of-school children had been reduced by half since 1990 (Moore, Gove & Tietjen 2017). Once access to education improved in low- and middle-income countries (LMIC), attention shifted to **quality schooling** and learning. Despite massive improvements in access to education across the world, problems still persist in terms of access to quality education. International education studies consistently show large differences in educational quality across countries, especially in LMIC education contexts (Hanushek & Woesmann 2009; Kaarsen 2014; Evans & Acosta 2020). For example, one year of schooling in the USA is equivalent to three to four years in many developing countries (Pritchet & Beatty 2015). Despite increased access to education, statistics showed high primary school illiteracy levels, with over 60% of Grade 3 children in many developing countries unable to read a single word, despite having been in school for three years (UNESCO 2013).

Attention thus shifted to the need for establishing strong foundational literacy and numeracy skills in primary schools. Other reform efforts included curriculum revisions, increased resources, materials development adapted to local contexts, and improved teacher training. These global reform efforts resulted in education planners, funders and donor organisations requiring solid evidence of what works in the educational space within and across different educational contexts. This resulted in greater attention being paid to monitoring and evaluating interventions that aim to bring about changes in learning outcomes by way of demonstrable, significant improvements. Do some instructional approaches produce better learning outcomes

than others? Do they narrow or close the learning gaps seen in LMIC education contexts? Do all children benefit from an intervention or do some learners benefit more than others? An intervention may work on a small scale (e.g., when applied to some classes in some schools), but education reforms are needed at a larger system level, so it is important to know what happens when an intervention is taken to scale (i.e., it is applied on a large scale, across many hundreds of schools and districts). What are reasonable learning gains when going to scale? Schools are themselves complex organisations with multiple stakeholders. System reforms that aim to turn around ineffective teaching methods and low learner achievement are extremely challenging. A reading programme might work in a well-resourced, middle-class school in a highly literate, high-income country with only 20 children in a class, but will it still work in a developing-country context where classes are large and poorly resourced? Understanding the mechanisms that drive foundational literacy and numeracy and examining how contexts and enabling conditions (or lack thereof) affect teaching and learning are all critical to advancing educational reforms.

Masses of data and evidence have been collected over the past two decades from global education reforms about what works and what does not work across educational contexts. For example, structured teaching/learning programmes have consistently been found to yield much better learning outcomes than approaches that promote discovery learning or incidental learning (Kim et al. 2016; Moore et al. 2017; Evans & Acosta 2020). Such reform realities need to be taken seriously by higher education institutions responsible for teacher training and require these institutions to be empirically accountable to the instructional practices that they espouse. However, many education faculties within higher education institutions are not familiar with this global education research literature and continue to teach reading theories that do not align with these global research findings.

Conclusion

Debates and controversies are a normal part of our everyday lives, and everyone is entitled to their own opinions and beliefs in their everyday lives. However, in their professional lives as educators, teachers need to be aware of the importance of separating personal opinion from research evidence when making instructional decisions about classroom practice (Stanovich and Stanovich 2003). Early reading instruction is not trivial: how successfully children learn to read affects their schooling, their future job opportunities and socioeconomic benefits and their personal and social lives. It also affects a country's economic and political development. What is done in the Foundation Phase classroom and how it is done matters with regard to early reading development. Understanding the principles underlying scientific research, as well as the direction in which the *preponderance* of research findings from both scientific research and from global educational reforms point over time, enables teachers to better understand what is meant by 'evidence-based practice' and provides them with quality control mechanisms that enable them to sift through all the information and make informed decisions about what validates educational practices in today's world.

Self-assessment activities

These are 'quickie' assessment activities to check how well you have understood key concepts discussed in this unit and whether you are able to perceive the pedagogical implications of such concepts in the teaching of reading.

Note: The key to these self-assessment activities is given in the Appendix at the end of this module. If you score less than 6/8 (75%) for these questions you are advised to re-read the unit again to strengthen your content and pedagogic knowledge.

1. In each of the statements below provide **the appropriate missing word (or words)**. (5)

   a) In a _____ approach to teaching reading, teachers are taught about all the different aspects of language and literacy that contribute to meaningful reading. (1)

   b) When it is stated that a particular teaching method has consistently been found to produce better learning outcomes than other methods, this means that there is _____ evidence for the method, since more than one study shows similar outcomes. (1)

   c) In a _____approach to reading, it is believed that children will learn to read naturally, through immersion in authentic reading and writing tasks where the focus is on meaning. (1)

   d) In scientific research, the principle of _____ refers to the importance of double checking findings by repeating a study in a slightly different context to see whether the same results will still obtain. (1)

   e) The principle of _____ means that scientific knowledge does not remain static but is continually changing as new technology brings new evidence to light. (1)

2. Indicate which one of the following statements is **false**. (1)

   a) In the holistic view of reading, any activity involving breaking words down into smaller units is regarded as taking the focus away from meaning.

   b) The phonics approach helps learners read words by initially sounding out the letter sounds that make up individual words.

   c) Fixations in eye tracking research occur when readers experience some difficulty when reading a text, such as rereading a word or section of text.

d) Research in neuroscience can show us what happens in the brain, where and how fast when we speak or read.

3. Indicate which of the following statements is the **correct** one. (1)

a) Adopting evidence-based practice means that teachers can select which reading methods they think are best suited to their classes.

b) Evidence-based practice includes an examination of teaching methods in relation to learner outcomes across factors such as gender, school, and socioeconomic factors.

c) Teachers should rely on their own experiences to decide with certainty what works best in teaching children to read.

d) Evidence-based practice can derive from findings from a single study involving a few participants.

4. Consider the following scenario and then select only **the option** which is **an inaccurate reflection** of this scenario. (1)

Some Grade 1 teachers are sitting around a table during a lunch break. They are talking about the 2-day workshop that they are attending on how to improve early reading skills in their district, where results show that most learners in their district cannot read by the end of Grade 1. On the first day, a presenter briefly explained that the method that was being recommended is evidence based and has found to be particularly effective in teaching children to read in schools serving disadvantaged communities. The method was explained, and teachers were shown how to assess their learners to determine who was learning to read and who was struggling. Data was presented to show improved learner results from disadvantaged schools using the method compared to disadvantaged schools not using the method.

Some of the teachers at the workshop seem resistant to changing their classroom practices. Teacher P says that she has been teaching reading in Foundation Phase for over 40 years, she is not going to change her teaching methods now – "I don't have time to assess all the learners individually but I have been teaching for 40 years so I know what methods to use." Teacher S says "Eish, that presenter is so young! What does she know about teaching kids? She's from Gauteng and speaks Sesotho. What does she know about classrooms here in rural KwaZulu-Natal?" Teacher H has only been teaching for one year. She says that she was introduced to different reading methods in her BEd course and told to use the method that she feels best suits her class. Now she is confused as the method presented at the workshop is not one that she thinks suits her class.

a) From the above scenario it seems that Teacher S is using an *ad hominem* argument as to why she is sceptical about the approach that is advocated in the workshop.

b) From the above scenario it seems that Teacher P's comments exemplify Goldacre's argument that an awareness of scientific research can help "to prevent ourselves from being misled by our own experiences and prejudices" (Goldacre 2008, p xii.).

c) From the above scenario it seems that the BEd course from which Teacher H graduated provided student teachers with scientific guidelines to make informed decisions about which reading methods are effective.

d) From the above scenario it seems that Teachers P, S and H are struggling to use the research data about learner reading performance in their district to help them reflect candidly about whether the teaching methods they use are successful in producing skilled readers.

Unit 2: The Whole Language approach to reading and the attempted compromise of balanced literacy

Introduction

This unit first describes the Whole Language approach to reading and identifies the claims it makes about how children learn to read. Thereafter the main criticisms that have been levelled against the approach are described, and the responses to these criticisms as reflected in the Balanced Literacy approach are outlined.

The Whole Language approach

All theories have a history and a particular context in which they emerged. The Whole Language approach had its origins in the Whole Word approach, so our overview starts there.

The Whole Word approach

The Whole Word approach to teaching reading, often called the **Look and Say** method, was popular in the USA and other countries from the 1930s to the 1950s.

The **Whole Word approac**h is essentially about looking at the visual appearance of words and memorising them for reading without sounding the individual letter sounds out. It was thought that learners can memorise many words in this 'look-say' manner. Reading is thus seen as a visual memory process. It argued that if the beginner reader sees words often enough, these words will be stored in memory as visual images. The idea is that children must recognise a word based on its visual appearance as a whole – its **gestalt** – rather than decoding words based on the sounds of the letters/graphemes that form the word. The argument was that because skilled readers read whole words, beginner readers should be taught to do the same right from the beginning. Teaching reading did include teaching the alphabetic code and letter sounds to some extent, especially to identify the beginning sound of words, but this was not central to the Whole Word approach. Special readers were designed using familiar everyday words that helped children memorise common words.

The teaching method associated with this approach in the USA used a series of readers called the *Dick and Jane* readers (Dick and Jane were the names of the children who featured in the stories). The *Janet and John* books were used in the United Kingdom during the 1950s and 1960s, about daily episodes involving a sister and brother. In the 1970s these were replaced with a more updated *Kathy and Mark* series of books. Characteristic of these books was word repetition (to reinforce visual memory of words) and the inclusion of pictures (to reinforce the meaning of the text), the aim being to repeat words sufficiently frequently so that children

memorised them. By the 1970s the Whole Word approach was replaced by the Whole Language approach.

The Whole Language movement

The Whole Language approach emerged in the late 1960s and became dominant from the 1970s to the 1990s, particularly in English-speaking countries. It emerged during a time of social upheaval in America and Europe where old ideas (in politics, psychology, language and education) were challenged[2] and new ideas were being proposed. The Whole Language approach was particularly influenced by top-down theories of comprehension from psychology that were emerging at the same time. The main proponents of the Whole Language approach were scholars like Kenneth Goodman and his wife Yetta Goodman and Frank Smith, in the USA, and Marie Clay in New Zealand.

The **Whole Language approach** has a similar basis to the Whole Word approach but goes much further. It stresses the importance of meaning making above all in reading and downplays the role of skills and memorisation in learning. In particular, it denounced the so-called importance of explicitly teaching the alphabetic code in early reading, which is seen as involving mechanistic learning. According to the proponents of the Whole Language approach reading must be authentic and should not be based on mechanistic learning and skill development. This approach stresses the enjoyment of reading and building the self-esteem of learners. Through engaging with storybooks, using visual and linguistic cues and focusing on meaning during reading, children will be motivated to figure out what the words are, remember what they look like, and they will associate written words with their own speaking of the words. Some attention is given to teaching letter sounds, mainly in an embedded way (see below), but this is kept to a minimum as phonics is seen to be boring and inauthentic. It was argued that lower-order skills are a by-product of comprehension and will develop naturally through meaning-based activities.

Like the Whole Word approach, supporters of the Whole Language approach assume that children will simply internalise written language in the same way that they acquire spoken language and that they read words as wholes. Smith (1973) argued that a reader identifies words (if they identify the word at all) as an ideogram, meaning that words are read as unanalysed wholes.

Goodman (1967) defined reading as a psycholinguistic guessing game (the title of his book). He claimed that reading skill does not involve precision and the reading of every word. Instead, readers focus on the meaning of the text, making accurate guesses as they read, based on sampling some of the words in a text: reading "*is not a matter of careful attention to detail or concern for accura*cy … *reading isn't recognizing words, it's making sense of print*" (Goodman 1996: 7).

[2] This was the 'hippie' era, when the contraceptive pill was discovered, giving women choice over reproductive processes, and young people were challenging traditional ways. There were student protests against the status quo at universities across Europe and America, and strong anti-war protests against the Vietnam War. Behaviourism was the dominant paradigm in psychology and its views were also being challenged.

Based on his study of children reading word lists and then the same words in context, Goodman claimed that skilled readers rely on contextual clues to read words. Good readers make many 'mistakes' as they read authentic text – hence the description of reading as a 'psycholinguistic guessing game'. He argued that struggling readers should thus be encouraged to do the same and that phonics knowledge is not helpful for word recognition. In his doctoral research, Goodman (1967) examined the types of mistakes that young readers make and drew inferences about the strategies they employ as they read, a method of assessment he called 'miscue analysis'. He noticed that the children in his studies often made errors as they read, but many of these errors did not change the meaning of the text (like misreading "rabbit" as "bunny"). He surmised the reason must be that good readers depend on context to predict upcoming words in passages of text. He argued that for good readers, these contextual cues are so important that the reader need only occasionally "sample" from the text – that is, look at a few of the words on the page – to confirm the predictions. Goodman argued that good readers "get to the meaning without attending to all the detail of the letters and the words" (1967: 42) and that comprehension must precede the identification of individual words. Children who struggle to sound out words, Goodman said, are overdependent on letter and word cues and should learn to pay more attention to the semantic and syntactic cues. Teachers should not waste time teaching decoding but rather teach learners to figure out what words say by using the pictures or context clues (meaning), the structure of the sentence (syntax), and the letters on the page (visual). This gave rise to the cueing system, using syntactic, semantic and visual clues to guess words. By focusing on the meaning conveyed by written texts, children will incidentally figure out how the alphabetic code works and do not have to be taught it. In fact, he suggests that teaching phonics is boring, mechanistic and unnecessary.

Goodman and Smith's holistic ideas about reading and their view that phonics is time consuming and unnecessary soon became widely accepted by the 1980s. It inspired changes to the way reading was taught since it focused attention squarely on the reader's top-down construction of mental representations of meanings in text. It thus aligned with the progressivist movement in education and with broader views of top-down social constructivist views of learning. This new method of teaching reading was implemented in schools in the USA and in other English-speaking countries. As a result, the teaching of decoding skills was dropped in many early reading programmes across schools. If it was included, it was done in a minimal way that did not involve learning the sounds of letters one-by-one and the process of blending them to form words. Instead, children were taught to recognise a letter and its position in a word (usually at the beginning of words), without breaking words down into their constituent sounds. This method was used in parallel with, or sometime after, reading books, using a 'look and say' approach.

The main features of the Whole Language approach to reading include the following:

Learning to read is like learning to speak: Whole Language proponents argue that learning to read is as easy and natural as learning to speak; it is a wondrous natural process of discovery that unfolds through immersion in stories.

Motivation to read: Whole Language places emphasis on nurturing a love of books and reading, as this is seen to be a motivator that drives reading. If teachers focus on meaning and the reading of story books, then reading becomes a meaningful activity. The teaching of phonics is seen to be boring and will not motivate children to read. Children will discover the joy of reading through immersion in storybooks.

The teaching of phonics is unnecessary: Goodman (1996: 10) argued that "matching letters with sounds is a flat-earth view of the world" and that readers instead use contextual cues in the text, to read. Similarly, Frank Smith (1997: 57) dismissed the role of phonics in reading: "reliance on phonics – or spelling-to-sound correspondence – is dysfunctional in fluent reading and interferes with learning to read". Decoding is considered to be mechanistic and therefore undesirable (Goodman & Goodman 1979; Smith 2004).

In some Whole Language programmes, embedded phonics could be used, where teachers point out letter-sound relationships incidentally while reading a story or when learners experience difficulty reading a word. Say the story is about a zebra, then the letter z and the /z/ sound will be taught. The letter sounds are not taught according to a specific scope and sequence; the story 'drives' the lesson and the phonics is 'embedded' in the text.

Analogy phonics could also be used, where readers are taught to use parts of words they already know to read words they do not yet know. For example, in English the *_at* structure can be used to help children to recognise words such as *bat, cat, fat, hat, mat*. While English has many short, single-syllable words, this approach is not feasible with longer words, nor does it work in languages with complex morphologies. For example, when applied to African languages (iphepha/kepha or sifuna/sifunda) the approach disrupts the syllabic nature of African languages.

Use of authentic texts: Whole Language rejected the 'boring, artificial, and repetitive' readers of the Look and Say era. Instead, it promoted the use of authentic texts in classrooms. Similarly, it disapproves of decodable text, since this is artificially contrived; readers used in classrooms should reflect real children's stories.

Early writing emphasised: Writing is emphasised at the earliest stages of learning to read, and children are encouraged to write about their own worlds to emphasise the meaning-making function of written language, using 'invented spelling'. Teachers help children write stories jointly through their own personal experiences. Children discover letter-sound relationships as they read books and express themselves in writing, using their invented spellings. Meaning and enjoyment are viewed as motivational factors that drive the 'learning to read and write' process.

The Three Cueing system: Based on Goodman's argument that readers use contextual cues to read words, Marie Clay developed the 'Three Cueing System', also called the Searchlight method, to help learners to recognise words in a text. Unfamiliar words in text are not sounded out. Instead, learners are encouraged to guess the word by focusing on meaning, using language or visual cues in the text, or even by asking somebody what the word is. The first letter of a word can be used to guess the rest of the word; learners can use more letters to help them identify a word, but only as a last resort.

As shown in Figure 5, teachers using the Three Cueing method encourage learners to identify an unknown word by using the pictures or context clues by asking these questions: 'Does it make sense? (meaning), 'Does it sound right?' (sentence structure, using syntactic cues), and 'Does it look right?' (using visual/graphic cues). If learners can 'guess' the word using such cues they are regarded as mastering the principles of reading and are on their way to becoming skilled readers. Reading new words thus becomes a series of strategic guesses.

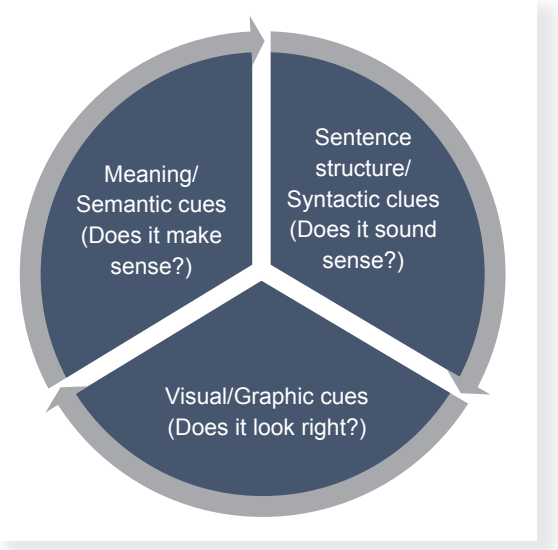

Figure 5: The three cueing system

Clay created a programme called Reading Recovery for struggling readers based on the three cueing ideas. This programme was implemented across New Zealand in the 1980s and influenced many reading programmes and texts on teaching of reading throughout the English-speaking world.

Criticism of the Whole Language approach to reading instruction

Although the social upheaval that started in the late 1960s heralded exciting times with interesting new ideas, not all new ideas are necessarily accurate. New theories and their claims need to be tested. Research into reading intensified from the 1970s to the 1990s, particularly in disciplines such as psychology, linguistics, and cognition, as many researchers were keen to explore these new ideas further. However, the findings did not consistently support Whole Language claims about how children learn to read, and many results showed the opposite of what was claimed. While everyone agrees that reading is about meaning, the controversies revolve around *how* children *become* comprehending readers when learning to read written language where words are encoded in an alphabetic writing system. This led to ongoing criticism levelled against the Whole Language view of how children learn to read this coded form of speech and what role teachers play in this process.

In the following section these issues in particular come under scrutiny. Other issues that Whole Language proponents advocate – such as the importance of exposure to books, that a positive attitude to books helps motivate learners to read, that storybook reading in the home and early school years is important, and that learning to read and write should be done in tandem – are factors that reading scholars generally agree on.

'Learning to read is like learning to speak'

The Whole Language assumption that learning to speak and learning to read are the same has been strongly contested. While oral language and written language certainly have language in common, the argument that acquiring spoken language and learning to read are the same ignores a fundamental difference between oral and written language, based on evidence from neuroscience and from the history of human evolution.

It is estimated that language capacity in humans evolved about 100,000 or more years ago. There are specific areas of the brain (the frontal and temporal cortex in the left hemisphere (see Module 1) that have evoved to process language. Young babies are also hard-wired to look at human faces and tune into human language and speech sounds from birth. The human brain is thus 'hard-wired' for learning spoken language naturally and is fully adapted for language processing during the first 10-12 years of human life. Children do not therefore require any explicit language teaching. Any child, unless cognitively or hearing impaired, will learn to talk when exposed to human language; hearing impaired children will naturally start signing to convey communicative intent. Children go through fairly predictable stages while acquiring language without being prompted, and by the age of six or so they have acquired the basics of their primary language(s) without anyone explicitly teaching them the linguistic 'rules' of their language(s). For example, cooing and babbling are precursors of speech where babies start using their tongue and mouth to form speech sounds. Cooing starts around three months, single babbling (making speech sounds like *bbbbb, gggll* or *mmmaa*) around six months, followed by reduplicating babbling (*babababa, gaga, memmemme*) a few weeks later. Even deaf babies will engage in some form of cooing or babbling in the early stages despite not hearing spoken language input. By the age of 10 months, babies have already learned to recognise the speech sounds (or phonemes) of the language(s) to which they are exposed. It is more or less at this time that children lose some of the capacity to distinguish and produce phonemes to which they have not been exposed but which may occur in other languages (Kuhl, Williams, Lacerda, Stevens, & Lindblom, 1992). Children as young as one year also start understanding the gist of basic sentences spoken to them by those they interact with. Most children generate simple one- or two-word utterances by the time they are 18-24 months old.

While the genetic mechanisms are not yet fully understood, moving unprompted through different learning stages and acquiring a complex communication system without explicit instruction are all characteristics of innate behaviour that is built into our human DNA at birth. It happens within a specific time (called a 'window of opportunity'), after which the *innate*

learning ability seems to diminish, and learning other languages becomes more conscious. The few children known to science who did not learn to speak in early childhood, such as the French 'Wild Boy of Aveyron' and the American girl, Genie, were almost totally isolated from other people during their critical early years. Efforts to teach these children to understand and speak a language failed to a large extent; while they could communicate verbally in a basic way, they never properly acquired language and morpho-syntactic details were missing in their speech. The wild boy was estimated to be about 10 when he was found roaming the woods all alone, and Genie was nearly 14 years old when social workers found her. Both children had passed the critical window of opportunity in which to acquire language naturally. The notion of an innate learning mechanism without explicit instruction applies only to acquiring a language during the early years; more languages can be acquired this way during the early years, as usually happens in multilingual societies. However, from about 10 years of age, the ability to 'pick up' a language naturally diminishes, and thereafter we learn a new language differently, benefitting from explicit instruction as we grow older.

In contrast, the first writing system was invented in the Middle East only about 5,400 years ago, while the alphabet system is about 3,800 years old (Dehaene 2009). Our writing system is relatively young compared to the much longer evolution of language in humans, so children are not genetically programmed to 'acquire' the writing system in the same way they acquire spoken language. Reading and writing are flipsides of the same coin, and children typically learn to read and write at the same time. Reading and writing, together with numbers and other mathematical symbols, braille, morse code, music notation and computer coding systems are complex symbolic representational systems devised by humans and are not acquired naturally simply through exposure but need to be taught.

The evolutionary psychologist David Geary (2005) explains these differences in terms of primary knowledge and secondary knowledge. Primary knowledge refers to understanding aspects of our world that humans naturally learn about as we grow up. They are part of our evolutionary history, and the human brain is hard-wired to learn them. They require human engagement to emerge but do not require formal schooling to be acquired. Oral language (listening and speaking) is primary knowledge, as are recognising human faces, 'reading' body language and facial expressions, making inferences about the feelings of other people, developing an inherent sense of quantity, and navigating one's way through a physical environment. All normally developing children acquire primary knowledge without formal schooling.

As societies became larger and more complex, people acquired more complex ways of doing things (trading, finance, administration of rules and regulations for larger groups of people). Writing systems evolved to record things and keep track of information, and more complicated and abstract forms of numeracy developed (mathematics). Secondary knowledge refers to learning things about our world that are not hard-wired in our brains but are part of cultural innovations in the more recent evolution of human beings, such as mathematics and literacy (how written language 'works'). Secondary knowledge tends to be acquired through teaching

and formal schooling, and it relies on attentional control, working memory, motivation, and setting aside time for learning. Children seldom acquire secondary knowledge without formal schooling.

Recognising these different types of knowledge and how our brains process information makes it easier to understand why some kinds of knowledge and skill (reading and writing) is harder to acquire than other kinds of knowledge and skill (listening and speaking in a primary language), and why secondary knowledge requires more explicit teaching and conscious effort than primary knowledge. Theories of learning that assume that children acquire reading and writing in the same way that they acquire listening and speaking overlook these basic evolutionary differences in how the brain learns.

'The whole is what is important'

The Whole Language assumption that skilled readers read words as wholes and that children thus learn to read by reading whole words or even sentences is not supported by scientific evidence. Studies from neuroscience repeatedly show that skilled readers who read fast still break down the word into its constituting graphemes and then map the corresponding sounds onto the graphemes to form the word. In other words, the phonological processing of written language is an integral part of reading. The only difference between beginner readers and skilled readers is that the brain of a skilled reader has managed to speed up the process of decoding words through what Dehaene (2010) calls 'parallel processing' – that is, all the graphemes in the word are processed by the visual system all at once, 'in parallel' rather than in sequence, one after another. This process has become so automatised that it happens in milliseconds. To the naked eye it may seem as if readers are reading whole words, but in fact they are still reading the graphemes and blending them to form words, only at high speed. The brief discussion above is an example of how theories need to adapt to findings from new technologies and different scientific disciplines.

Secondly, the Whole Language claim that beginner readers learn to read by reading whole words means that children must basically memorise each word, a learning task that puts an incredible burden on memory, given the hundreds of thousands of words in a language. In African languages (which are agglutinating), especially the Nguni languages with their conjunctive writing systems, this means that children would have to memorise entire phrases and sentences. It is important to remember that the Whole Language approach emerged in an English-speaking context. English has many short high-frequency words, and the average word length across English texts is four letters (Björnson 1983, in Land 2015). In the days before modern technology showed otherwise, it was easier to assume that we process words holistically when reading short words in English like *The cat sat on the mat*. In agglutinating languages, a single word can express a whole sentence, and visually similar syllables within a word need to be processed carefully, otherwise subtle changes in meaning are lost, for example in isiZulu:

Sengiqeda *Sengiyaqeda* *Sengingaqeda* *Sengizoqeda* *Sengiqedile*

Trying to remember hundreds of variations of each verb form puts an excessive burden on memory. Furthermore, readers need to process all the letters in each word, otherwise they will miss important morphological cues within the word that change the meaning of the sentence. The inadequacy of the Whole Language approach for reading instruction is apparent in agglutinating languages. Expecting children to figure out for themselves how visual symbols map onto spoken language in such transparent but complex orthographies is not only inefficient and unproductive, but pedagogically questionable.

'Teaching phonics is unnecessary'

Whole Language privileges meaning above all and emphasises wholes; as a result, the systematic teaching of phonics, which focuses on the small parts of the writing system (phoneme-grapheme relationships and their orthographic patterns), is dismissed by Whole Language as unnecessary. A bit of embedded or analogy phonics here and there is regarded as adequate, but using instructional time to explicitly and systematically teach phonics is regarded as unnecessary. However, research across all languages that use an alphabetic writing system consistently shows that children who do not have phonics knowledge struggle to learn to read. Phonics knowledge plays an important role in learning to read, and children who are not taught phonics are at greater risk of being struggling readers. As Snow and Juel (2005: 518) point out, "… attention to small units in early reading instruction is helpful for all children, harmful for none, and crucial for some." It is especially helpful for children learning to read in agglutinating languages with their multisyllabic and multimorphemic words.

An important cognitive skill that children develop from an early age is whole-part processing – seeing how parts make up a whole, and how a whole can consist of parts. Both aspects are important. As a theory, Whole Language fails to take into account the parts that make up the whole. Decades of research in both cognitive science and neuroscience have helped to show how humans make meaning from various components and in various parts of the brain, and how these differ when we make meaning from oral and written language.

What happens in the brain during reading is invisible to the human eye: special technological tools are needed to help us understand how reading works. Teachers do not gain this knowledge just by observing children in their classrooms. Processing written language begins in the occipital lobe of the brain where the visual system is located. We don't typically use the occipital lobe when speaking or listening to oral language, but we see printed words with our eyes, and this information gets relayed to the language parts of the brain. Neurological studies have shown that when beginner readers are taught letter-sound relationships, new neurological pathways linking the visual area to the language areas are formed in the brain and are strengthened with practice. When learners are not taught phonics, these pathways do not develop strongly and take longer to develop, making reading effortful. Many learners therefore remain struggling readers.

‘Accuracy is not important’

In the Whole Language approach, it is argued that accuracy in word reading is not important and that good readers often skip words altogether: *“reading is not a matter of careful attention to detail or concern for accuracy”* (Goodman 1996: 7). This is another Whole Language claim that finds no empirical support in scientific reading research. In fact, converging evidence from different studies using different languages, different alphabetic writing systems and different contexts consistently find the opposite, namely that skilled reading relies on attention to detail, accuracy and precision. Eye-tracking studies also consistently come to the same conclusions.

Accuracy reflects skill across all domains. Skilled readers read words with 98-100% accuracy, while weak readers read with 90% or lower accuracy. Once readers reach around 95% accuracy in their reading then their chance of reading with comprehension improves. Recent large-scale South African research based on reading in the Nguni and Sotho languages confirms this, as shown in Figure 6. The data come from over 19,000 unique learners from Grades 1-7 in 359 no-fee schools, so the empirical evidence is very strong (Mohohlwane, Wills & Ardington 2022). In Figure 6 the vertical axis on the left in each graph indicates accuracy of reading (how many errors learners made while reading words) while the horizontal bottom axis indicates fluency (speed). The fewer mistakes that learners make (i.e., the more accurately they read), the more fluently (faster) they read. It is only when they start reading with 95% accuracy (indicated by the dotted line) that they start reading with comprehension. The red circle in each graph indicates all the learners in the sample who read inaccurately (below 90%) and slowly, and who were in a zone of non-comprehension. The pattern is the same across the languages irrespective of whether they are conjunctive (Nguni on left) or disjunctive orthographies (Sotho on right). When analysing the data, the researchers searched very carefully for learners who read inaccurately and slowly but still understood what they read and could not find such readers.

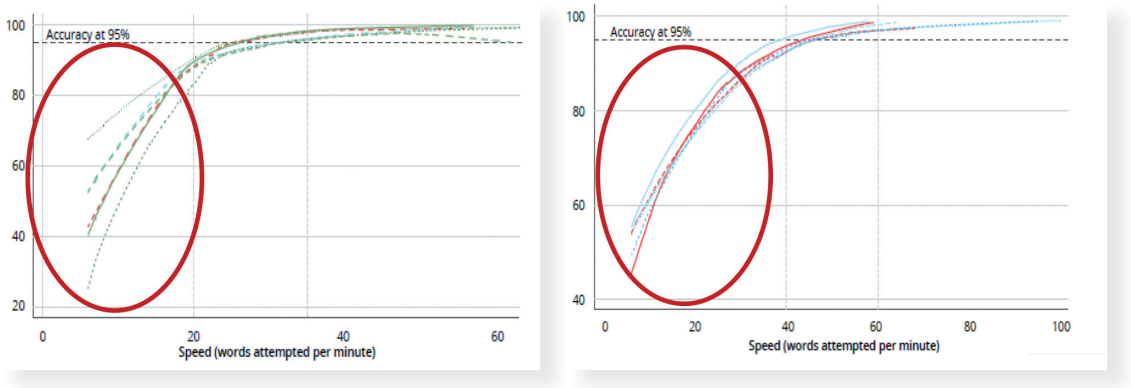

Figure 6: Accuracy and speed in the Nguni languages (left) and the Setswana-Sotho languages (right)

To date, Whole Language proponents have not produced any data that shows that inaccurate readers and guessers are fluent, comprehending readers. Children should not have to guess what words are; teaching them alphabetic knowledge empowers them to read any words accurately,

even words they do not know, as well as non-words.

As to the Whole Language claim that skilled readers skip words, here too evidence from eye-tracking research shows otherwise. Eye-tracking research with English readers has found that while up to 25% of words in English are sometimes skipped, these tend to be short function words (*it, to, the*) which can be inferred from the preceding words. However, skilled English readers seldom skip content words like nouns, verbs and adjectives (Raynor, 2009; White, 2008). Furthermore, skipping words is not possible in agglutinating languages. Given the longer word units in agglutinating languages, too much information is lost if attention is not paid to details within words. In her eye-tracking research with isiZulu readers, Land (2015) found that competent isiZulu readers skip fewer than 1% of words. Refixations may be attributed to incomplete lexical processing of a word with the first fixation. In their eye-tracking research, Van Rooy and Pretorius (2013) found differences in the eye movements of the same learners reading in English and isiZulu. Results showed that fixations (as measured in milliseconds ms) were much longer when reading isiZulu text than when reading English text (554.5 ms in Zulu versus 468.8 ms in English), with a higher number of refixations occurring in isiZulu. These differences suggest that the longer and morphologically denser written words of isiZulu required more cognitive effort and processing time. Similar results occurred in Land's study (2015), who found more fixations, which also lasted longer, among competent adult readers reading in Zulu compared to English. This is indicative of a careful, letter-for-letter processing employed when reading texts in agglutinating languages to ensure accuracy.

The case against cueing

Goodman's argument that good readers use contextual cues to read words and so learners should be taught to use cues in the text to recognise words became an important part of Whole Language and subsequent Balanced Literacy. However, this view has found little empirical support in scientific research and the so called three cueing (or multiple cueing) method has been strongly criticised.

Stanovich (2000) reports how he and a fellow postgraduate student, Richard Westman, were initially excited by Goodman's findings in the early 1970s and set out to replicate the cognitive processes of reading in their studies. Following Goodman, their hypothesis was that skilled readers would rely more on contextual cues to recognise words than poor readers. To their surprise, their research results showed the opposite. The skilled readers could instantly recognise words without relying on context, while the poor readers were reliant on context for word recognition, precisely because they lacked phonics knowledge to decode words. Stanovich and colleagues conducted further research to double check their results, and each time their studies consistently showed that it was weak readers who relied on contextual cues to guess words; skilled readers used phonological processing to read words accurately and fast; they did not have to guess. (This is a good example of the important role of replication in research to verify claims.)

Stanovich and his colleague's findings are not unique. Converging research findings across languages and contexts have consistently shown that the ability to read words in isolation quickly and accurately is the hallmark of a skilled reader. Studies repeatedly show that only poor readers depend upon context to try to 'guess' words in text – good readers use the grapheme-phoneme information contained in the words themselves to identify the word quickly and automatically. Eye-tracking research with Grade 1 learners reading in isiZulu has also confirmed this. Pretorius and a colleague, Ella Wehrmeyer, used a portable eye tracker to examine the eye movements of a cohort of Grade 1 learners who were taught to read in their home language, isiZulu. Although some phonics was taught in the school, it was not done systematically. The researchers found that by Term 3 many Grade 1 learners could hardly read at all and only some learners had acquired phonics knowledge. Many children did not know where to go with their eyes – their eyes scanned the visuals rather than decoding the words. Several children had difficulty moving their eyes from left to right following the line of text. When fixations occurred on words (see the red dots in Figures 7 and 8 below), many children could not recognise the first letter-sound or syllable of the word and they could not blend letter-sounds. In sum, they had few phonics skills with which to read words. Many just made up a story as they read, or named the objects in the picture (Pretorius 2020).

Their eye movements were captured dynamically on a computer screen; the shots shown below are just 'freeze' excerpts from their reading. Figure 7 below shows the first two pages of the text and how a weak Grade 1 reader's eyes fixated on the visuals, not the words. When she was shown the text, her eyes did not go to the text at the left-hand side of page 1. Instead,

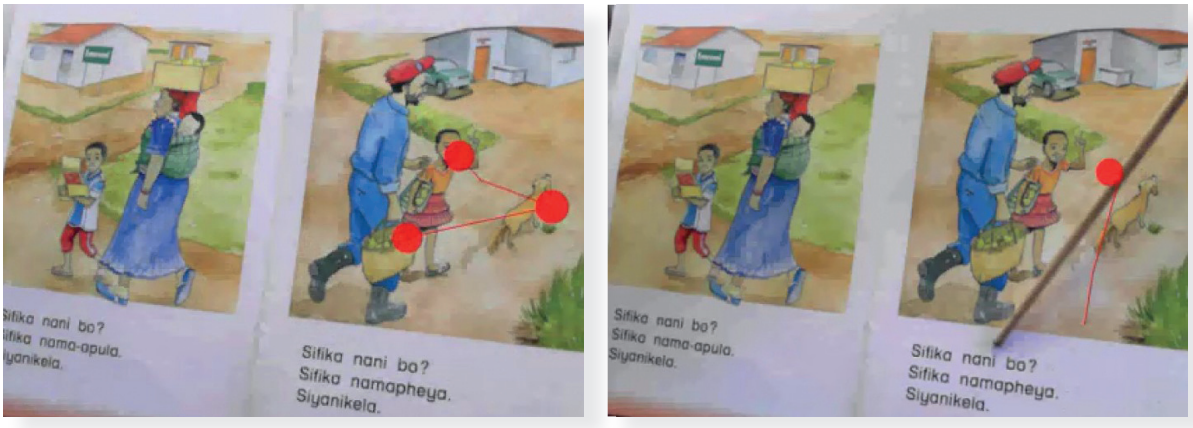

Figure 7: Weak Grade 1 reader – eye movements on visuals, not on words

they jumped to the visuals on page 2. After trying and failing to read the text on page 1, and even when the research assistant pointed to words with a pointer on page 2, to help guide her eyes, her eyes quickly jumped back to the visuals, as she did not know how to process the words on either page.

In contrast, good readers focused on the text – they went straight to the left-hand side of the text and started reading words from left to right. Good readers also had good reverse sweeps (going back to the left side of the new line), and they knew what to do when the text shifted from page 1 to page 2: their eyes went straight to the left side of the text on the second page, as shown in Figure 8 below.

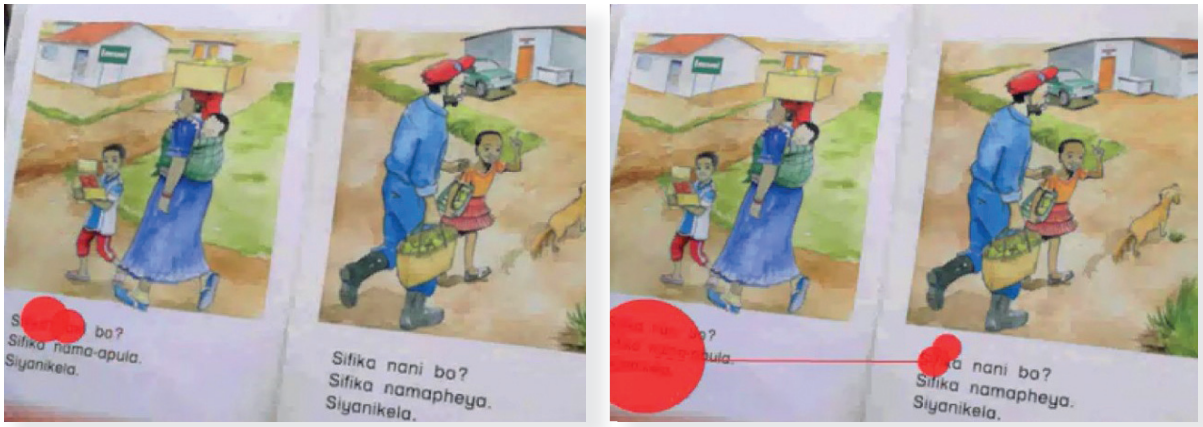

Figure 8: Good Grade 1 reader – focus on the text with eye movements going from left to right

Further arguments and evidence against the use of cueing instead of using phonics knowledge for word recognition comes from agglutinating languages. Finnish, like African languages, has a transparent orthography but a complex morphology; words are long – average word length is 7-8 letters compared to 4 letters in English – and the number of morphemes per word are very high. Because of its complex morphology, some Finnish words can have over 2,000 different word forms (Aro 2017). This makes guessing a word highly problematic and an unproductive strategy. Children have to work through words in a linear way, using phoneme-grapheme knowledge to read them; using letter knowledge is the most direct, accurate and fastest strategy for reading words, and studies show that letter knowledge is the strongest predictor of reading ability in Finnish even in Grade 4 and beyond (Aro 2017). In Finland, they have long learned that explicit phonics instruction is the most effective way to teach children to read in an agglutinating language such as Finnish (Aro 2017).

The same argument applies to African languages. Consider the following short text taken from a Vula Bula[3] story titled Uhambo/Leeto in Figure 9:

[3] *Uhambo*: Authors: Jenny Katz and Mirna Lawrence; IsiZulu language specialist: Dr Lawrence Molefe; Artist: Pinkie Wilson. *Vula Bula*, Molteno Institute for Language and Literacy, 2012.

Leeto: Authors: Jenny Katz and Mirna Lawrence; Sesotho language specialist: Mmasibidi Setaka; Artist: Pinkie Wilson. *Vula Bula*, Molteno Institute for Language and Literacy, 2012

Figure 9: Uhambo/Leeto

The identity of the first verb in line 1 of the isiZulu text, namely *Ngiyahamba* comprising the subject morpheme *ngi-*, the present tense morpheme *-ya-*, the verb root *-hamb-* and the categorial final morpheme *-a* cannot simply be guessed because it captures a finite phrase similar to *I am going/I am leaving* in English. Phonics knowledge is needed to decode the morphemes that make up the verb. The temporal adverb *kusasa* 'tomorrow' can also not be inferred from the context. Looking at the visual cues in the picture accompanying the text, a struggling reader may be misled into thinking the focus is on the mother and the bottle and guess that somewhere the text is saying *Umama ulungisela umntwana ibhodlela* '*Mother is preparing a bottle for the baby'* or *Ngilungisela umntwana ibhodlela 'I am preparing a bottle for the baby'*.

The same arguments apply to the Sesotho text. Although Sesotho employs a disjunctive writing system, most of the orthographic words in a Sesotho verb are morphemes. Phonics knowledge is needed to decode the morphemes in *Ke a tsamaya.* Similarly, the adverb *hosane 'tomorrow'* above cannot be inferred from the context, nor can it be determined from the illustration. Here too, the illustration does not provide any direct clues of what exactly the text is communicating.

All the words in the isiZulu and Sesotho texts above are transparently decodable, and the most direct, reliable and sensible way to access and 'read' these words is by using letter-sound knowledge to access meaning. It is difficult to comprehend why teachers would withhold the empowering knowledge of phonics from learners and urge them to guess the words instead, using unreliable, complicated and essentially disempowering strategies.

The need to read text by mapping phonemes onto graphemes using phonics knowledge is important in any language that uses an alphabetic writing system, irrespective of whether the language is English or agglutinating languages such as the African languages. It is important

to remember that Whole Word and Whole Language assumptions about reading emerged in an English-speaking context where words tend to be short – many common, high-frequency words that children learn to read in Grades 1-2 are 2, 3 or 4 letters long. It is thus a little easier to remember the shape (gestalt) of these words. Some children do learn to read in Whole Language programmes, not because the approach is effective but in spite of the approach (Moats states that around 40% of English learners learn to read this way, but 60% struggle). However, there are short-term limitations. Longer words in English occur in higher grades and come with more advanced literacy levels, and children without a strong phonics base struggle to read these longer words. Hanford (2019) describes the problem this way, from an English perspective:

> *… three cueing can actually prevent the critical learning that is necessary for a child to become a skilled reader. …. by using context and memorizing a small set of words, many children can look like good readers, until they get to about third grade, when their books begin to have more words, longer words, and fewer pictures. Then they are stuck. They have not developed their sounding-out skills. Their bank of known words is limited. Reading is slow and laborious and they do not like it, so they avoid it as far as possible. While their peers who mastered decoding early are reading and teaching themselves new words every day, the children who clung to the cueing approach are falling further and further behind.*

The problem of 'getting stuck' is more acute and starts much earlier in agglutinating languages, where long, multisyllabic words are the norm and occur commonly in Grade 1 texts. In these languages children have to focus on the phoneme-grapheme details of words rather than the surrounding context in order to 'read words', because phonics gives the reader direct and accurate access to the morphological and syntactic information relating to the words. In English, many short words can be memorised, and using only the first letter to guess a short word like *cat, hat, mat* may have a limited probability of success. However, in agglutinating languages, there are generally very few short words to memorise; trying to guess words like *ngiyahamba, ngiyalungisa, nginethikiti* or *tsamaya, itokisetsa* without attending to the smaller word grains within the words considerably decreases the chances of getting it right, and memorising words that actually function as phrases or sentences puts a tremendous burden on memory.

As Kilpatrick (2015:30) points out, the finding that skilled readers' brains are good at recognising words exceptionally fast has been known for more than a century, and it is not because they pay attention to contextual cues but because they use phoneme-grapheme knowledge to rapidly recognise words. This is by now one of the most consistent and well-replicated findings in reading research across languages that use an alphabetic system. Yet Whole Language theory about reading continued to ignore such convergent findings and sticks to outdated assertions about reading based on a study conducted 57 years ago (Goodman's, in 1967).

Ironically, the cueing method mimics what poor readers do when they try to read. By telling children to look at pictures or context, teachers actually draw the children's attention away from the very thing that they need to interact with in order for them to read, namely the letter sounds

that make up the word. In the cueing method, using phonics to decode a word is a last resort strategy, when the visual and other context clues fail. Yet weak readers resort to these strategies that take longer and are not as reliable and accurate as phonics. Weak readers do not have good phonics skills and cannot therefore sound out words. As Will (2020) states: "No doubt, when readers can't read, they'll come up with ways to pretend to read. Our job is to teach them to read, not to guide them to pretend better".

The controversy around the cueing strategies that Whole Language and Balanced Literacy promote relates to ***when*** strategies are appropriate to use during reading and ***for what purpose***.

- **What is the strategy intended for?** Is the problem that of *word recognition* or of *text comprehension*? If beginner readers encounter an unfamiliar word that they cannot read, this is a decoding issue: the quickest, most direct and most accurate strategy to read an unfamiliar word is to use phonics knowledge to sound it out.
- **When are other cues useful?** If readers *can* read the words but are struggling to make sense of the text, then this is a comprehension issue. They may encounter an unfamiliar word that they can decode but whose meaning they don't know. In this case, they can use morphological, syntactic, semantic or visual cues to infer the meaning of the new word. Once children have mastered the code and can read words relatively accurately and fluently, then they can apply strategies to help them extract information and construct meaning, as discussed in Module 4 on reading comprehension.

In early reading instruction, it is important for children to master the alphabetic code, as this enables them to decode any new or unfamiliar word they encounter. In other words, the language and visual cues that the Whole Language approach promotes are useful only for learners who *can already read* and who encounter a word or sentence whose meaning is unfamiliar, not for beginner readers who are still learning to decode words.

Because Whole Language privileges meaning in reading, it conflates the early developmental process of *learning to decode words* with *reading comprehension*. Contextual cues aid *comprehension* of a text, **not** *word decoding*; using contextual cues for word recognition is fallible, time consuming and ineffective (Adams 1998). Kilpatrick (2015) points out that teachers who use the cueing system to teach reading are not just teaching children the habits of poor readers, they are actually impeding the orthographic mapping process that leads to fluent reading. Shanahan (2019) sums up what evidence-based research has consistently found:

> *Multiple cueing systems for word recognition are simply too cumbersome and slow to be a part of proficient reading (Greene 2016). Good readers don't try to guess words … but look at all the letters when they are reading (Rayner & Pollatsek 1986). Good readers are the ones who figure out how to use those orthographic-phonemic cues to read (Lonigan, et al. 2018). Instead of teaching kids to mimic what readers do when they make mistakes, we need to teach them to do what successful readers do.*

In short, the Whole Language approach ignores the phonemic-graphemic principle underlying alphabetic writing systems in general, and is totally unsuited in particular for learning to read in an agglutinating language such as the African languages.

Whole Language reaction to criticisms: Balanced Literacy as an attempted compromise

It is interesting to note that during the heyday of Whole Language and the dominance of constructivist approaches to reading there seemed to be a large gap between what teachers were taught about reading and what findings about reading from scientific research were showing. From the 1980s until well into the 21st century, many textbooks on reading, reading difficulties and reading instruction intended for teachers and teacher trainees were adapted from views on learning in general, not reading in particular. These textbooks were not in line with the vast amount of scientific research on reading and the empirical findings (Joshi, Binks, Graham et al. 2009; Buckingham, Wheldall & Beaman-Wheldall 2013). Kilpatrick (2015) lists 100 top quality academic journals that publish only empirical studies on reading acquisition and/or reading difficulties that many educationists are seemingly unaware of.

However, over time Whole Language supporters recognised that the scientific evidence on the importance of phonics instruction was having an impact on education decision-makers. This was particularly the case after the publication in 2000 of the National Reading Panel report commissioned by the United States Congress, which emphasised the importance of phonemic awareness and phonics in word recognition, which in turn leads to fluency in reading, thus covering three of the 'Big Five' in reading instruction. As a result, Whole Language supporters started adding some phonics to their books and materials and renamed their approach 'Balanced Literacy'. Balanced Literacy proponents maintain that their approach is a mix of phonics instruction with plenty of time for learners to read and enjoy books.

However, the term 'balanced literacy' has become problematic despite the positive connotations implied in the name. Many scholars see the 'balanced approach' as essentially the Whole Language approach with an added smattering of phonics instruction. Pamela Snow (2019) and Stephen Parker (2019) point out that there is no clear definition of what balanced literacy means. In several 'balanced' literacy programmes, phonics tends to be embedded and plays a minor role in instruction and is not systematic or explicit. The 'balanced approach' also continued to support the multi-cueing system, encouraging learners to guess words rather than using phonics knowledge to sound them out and become accurate decoders (Spear-Swerling 2006; Hanford 2019).

An interesting example of the variability in the balanced approach can be seen with the United States writer and publisher Lucy Calkins (2001). Calkins's programme, the *Units of Study for Teaching Reading*, adopts a constructivist approach to teaching that minimises direct instruction and encourages teachers to guide and facilitate learners, not 'teach' them. Its original materials rejected systematic phonics instruction and condemned giving much time to phonics. In 2019,

as pressure in favour of direct phonics instruction increased, Calkins released new additional material on phonics but still queried its importance. In 2022 the programme was again updated and the multi-cueing approach was dropped. More systematic attention was given to phonics and decodable books were recommended. By 2024 Australia stopped using the balanced approach and now endorses explicit, systematic phonics instruction in all primary schools across the country.

In response to many parents' concerns as to why their children were struggling to learn to read in schools, the investigative science journalist Emily Hanford drew public attention to the state of early reading instruction in education in the USA. She did extensive research on what was happening in schools across America and raised questions about why so many children struggle to read and why so many teachers seemed to promote outdated views of reading and were unaware of findings from decades of scientific research into reading by reading experts, not general educationists. See her podcast: Sold a story: *How teaching kids to read went so wrong*. *https://features.apmreports.org/sold-a-story*.

Conclusion

This unit described the main assumptions and claims in the Whole Language approach, which had its origins in the Whole Word assumption that reading words is essentially a holistic or 'gestalt' visual memory process, an assumption that lacks empirical support. Other claims made by Whole Language supporters, such as learning to read being as natural as early language acquisition, that skilled reading relies on skilled guessing, not accuracy and attention to code details, also do not have consistent, converging research evidence. The empirical basis of Whole Language claims that phonics and phonological processing during reading are not relevant is very flimsy, compared to the consistent and overwhelming convergent counter-evidence. As Wren (2002) points out, the Whole Language approach has been extremely influential in reading instruction but has never been supported by evidence-based research. Even though it emerged within an English language context, the preponderance of English-based studies do not even support its claims. Its relevance to learning to read in agglutinating languages is even more remote.

Self-assessment activities

These are 'quickie' assessment activities to check how well you have understood key concepts discussed in this unit and whether you are able to perceive the pedagogical implications of such concepts in the teaching of reading.

Note: The key to these self-assessment activities is given in the Appendix at the end of this module. If you score less than 6/8 (75%) for these questions you are advised to re-read the unit again to strengthen your content and pedagogic knowledge.

1. In each of the statements below provide **the appropriate missing word (or words)**. (5)

   a) In the Whole Language approach the idea is that children must recognise a word based on its visual appearance as a whole – its **gestalt** – rather than decoding words based on knowledge of _____ and the _____ that they represent. (2)

   b) In the Whole Language approach, some attention is given to teaching letter sounds, mainly in an embedded way, but this is kept to a minimum as _____ is seen to be boring and inauthentic. (1)

   c) Using contextual cues helps for comprehending a text, not for _____ the words. (1)

   d) Contrary to the Whole Language claim that _____ is not important when reading, converging evidence shows that unskilled readers make far more errors than skilled readers while reading. (1)

2. Indicate which one of the following statements is **false**. (1)

   a) By encouraging learners to use semantic, grammatical or visual clues in a text to read an unfamiliar word, the cueing system produces highly skilled readers.

   b) Converging evidence has shown that the cueing system mimics what poor readers do when reading, not what skilled readers do.

   c) Converging research findings across languages and contexts have consistently shown that the ability to read words in isolation quickly and accurately is the hallmark of a skilled reader.

   d) Although the cueing system used in Whole Language and Balanced Literacy teaching has been popular for several decades, most research studies find that it hinders rather helps learners read words and has thus been dropped in many countries.

3. Indicate which of the following statements is the **correct** one. (1)

   a) Studies from neuroscience repeatedly show that fast, skilled readers do not break down words into their grapheme-phoneme constituents while reading.

   b) The Reading Recovery programme designed by Marie Clay for struggling readers

based on the three cueing ideas is sure to help struggling readers improve their decoding skills.

c) The Whole Language assumption that good readers read whole words is supported by empirical research across languages.

d) Neuroscientific findings that the occipital lobe is engaged in reading challenges the Whole Language assumption that learning to read is the same as learning to speak.

4. Consider the following scenario and then select only **the option** which is likely to be **an inaccurate reflection** of this scenario. (1)

Some Foundation Phase teachers are sitting around a table after school, discussing an in-service training workshop on early reading instruction that they all attended in their district the previous week, based on evidence driven research in teacher practice and the importance of phonics knowledge in reading words. Some of them feel somewhat confused as some of the information they were given at the workshop is different from their own personal beliefs about reading or what they were taught in their preservice teacher training. Teacher K said: "When I did my teacher training we were told that learning to read is like learning to speak and that focusing on phonics skills detracts from meaning". Teacher R said that in their teacher training the four language skills of listening, speaking, reading and writing were all approached equally: "I never knew that the brain processes oral and written language differently and that teaching the four language skills needs to be approached differently." Teacher A said that they were taught to follow a balanced literacy approach in her BEd course but she came to realise that it gave very little guidance about phonics instruction and she found that many of her Grade 1 learners struggled with letter sounds. In Teacher F's opinion "Teachers are in their classrooms every day, researchers are not, so teachers should be the ones to decide how they want to teach."

a) From the above scenario it seems that what students are taught about reading in their preservice training can affect their instructional practices in the classroom.

b) From the above scenario it seems that the way Teachers R and K were taught about reading in their preservice course was informed by Whole Language views of reading.

c) From the above scenario it seems that Teacher A feels that phonics instruction is given inadequate attention in a balanced approach to reading.

d) From the above scenario it seems that Teacher F is aware that that reading is an invisible process, which is why she feels that teachers know more about teaching reading than researchers.

Unit 3: The Phonics aproach to reading instruction

Introduction

Given the nature of alphabetic writing systems, it is not surprising that approaches to teaching reading and writing over the centuries have incorporated teaching children the letters of the alphabet and how they form the basis of words in written language. In this unit the phonics approach to reading instruction is described, followed by an examination of the criticisms against it and the evidence and arguments in support of synthetic systematic phonics.

The phonics approach

The phonics approach is based on the recognition that an alphabetic writing system represents spoken language at the level of individual phonemes in a language, and that it is therefore important to teach learners the alphabetic code (how letters/graphemes represent the sounds/phonemes in a language) in order for them to read and understand written language. This approach goes back centuries and has been used across all alphabetic languages.

Phonics approaches to early reading instruction have evolved over the years. As a result of ongoing research and increased understanding of how the mind and brain processes written language, early alphabetic and phonics approaches have changed and been adapted, resulting in what is today known as synthetic systematic phonics. In this section we take a brief look at different kinds of phonics approaches.

Early phonics approaches

In the **alphabetic approach,** the names and shapes of alphabet letters were taught ('learning your ABCs'), typically in alphabetic sequence, as it was believed that knowing the letters was sufficient to lead children into the reading of words. This method was popular in Europe and America from about 1620 and through the 1700s and 1800s. From the mid-1850s onwards, when education in the Western world started becoming available to everyone and not just certain groups of people like the nobility, the clergy and the wealthy, different features appeared in phonics instruction.

The first programme for teaching reading using **analytic phonics** was developed by Noah Webster in 1783. He was a lexicographer and produced the first dictionary of American English. He used his linguistic knowledge of English to develop a phonics approach to teaching reading in English. This programme was adopted in the USA and was favoured for about 100 years.

Learners were taught one sound per week, using a list of words that contained the sound. This approach starts with reading a set of whole words with accompanying pictures of objects

containing the target sound (e.g., a is for *apple*). Although the approach starts with whole words, it explicitly teaches letter-sounds in a particular sequence. In the beginning, attention is on the initial letter sound, for example the letter c and its **/k/** sound, in the English words ***c**at, **c**ot, **c**up*. After all the letters have been taught as the first sound in words, the focus shifts to the middle sounds in words, e.g., the **/a/** sound in *r**a**t, b**a**t, c**a**p* and then the end sounds (*ba**g**, be**g**, di**g**, fo**g***). Thereafter the consonant blends in word initial position are taught (e.g., /sp/ *spot, spend*, /bl/ *blend, black*) and then consonant blends at the end of words /lk/ *walk*, /nd/ *hand*, /ld/ *hold,* etc. More complex graphemes such as vowel and consonant digraphs and silent e are taught later. Sight words are also taught throughout the programme. Pictures accompanied the words where possible, and books with predictable, repetitive sentences were used for children to practice reading the letter and their combinations in words. These came to be known as the McGuffey readers in the USA. Analytic phonics was also taught in other English countries such as the UK for several decades, even in the early 21st century. Although some scholars would regard analytic phonics as more of a whole word approach to reading, it has been included here as it drew learners' attention to letter sound patterns at the beginning, middle and end of words.

It is clear that this approach works best for languages with short, single-syllable words that differ only in terms of one letter/grapheme (such as English). In languages with many longer multisyllabic words such as the African languages, recognising the beginning and end letter is not going to be a productive strategy since there are so many other sounds within long words, and many words in African languages tend to begin and end with a vowel, not a consonant.

Synthetic phonics

Synthetic phonics (also sometimes referred to as systematic phonics) is a more recent refinement of the phonics approach that aims to help learners acquire knowledge of the relationships between sounds and letters and how to blend letter-sounds to read words. Learners are explicitly taught letter-sound relationships **'one by one'**, following **a specific scope and sequence** (i.e., letter sound are taught systematically). Besides learning the letter sounds, **learners are also taught to blend together (synthesise) the letter sounds to form words**. Learners are also taught to **segment words into constituent sounds** when they encounter unfamiliar or difficult words. This parts-to-whole approach enables children to identify letters/graphemes in words, map the corresponding sounds/phonemes onto them and then blend the sounds/phonemes to form the whole word, and in doing so, determine its meaning. After a few letter sounds have been taught, learners can then apply their growing alphabetic knowledge to read words and sentences containing the taught sounds. Although it moves from systematically and explicitly teaching parts (letter sounds) and then blending parts to form the whole word, alphabetic knowledge also enables learners to move from the whole back to the parts when they encounter difficulties with word recognition: they segment the word into its parts and then blend the parts to sound out the word.

What is important in synthetic phonics is that the teaching of the individual letters/graphemes and their corresponding sounds/phonemes takes place before learners are expected to start

reading words or text (part to whole). In other words, a phonics lesson does not start with a text and then get learners to identify words within the text and letter sounds within words (whole to parts). Instead, it starts with the key letter sounds, and then provides practice opportunities for learners to see these letter sounds in words, and then blend them into words and short sentences. In the early stages of phonics teaching, decodable texts are used so that learners have opportunities to practise reading words containing letter sounds that they have been taught.

As described in Module 3 (Unit 4), the key principles of a good phonics programme include the following (Parker 2019):

- **Systematic**: Letter sounds (or grapheme-phoneme) correspondences are not taught in alphabetic sequence. Instead, they are taught in a clearly defined, incremental sequence, determined by the *frequency* of occurrence of sounds/phonemes in the spoken language and the perceived *complexity* of the grapheme, going from the easiest of single letters to more complex graphemes involving digraphs, trigraphs and consonant blends. There is no one-size-fits-all sequence of letter sounds taught, as their frequency and complexity depend on specific languages. Thus, phonics programmes for English, Afrikaans and each African language will have a different sequence, although there might be some overlaps where similar sounds may occur with similar frequency across languages.
- The second criterion in determining the order of the teaching of the grapheme/phoneme correspondences is the *complexity* of the grapheme-phoneme representation. When you start teaching the sounds you will not start with the more complex digraphs or trigraphs, but rather with the sounds with a high frequency represented by a single letter.
- **Explicit**: Phonemic awareness and letter-sound (grapheme-phoneme) correspondence is taught explicitly. Although there are some children who figure out letter-sound relationships, all children benefit greatly from explicit instruction. By explicitly drawing attention to letter-sound relationships, a phonics approach will foster phonological and phonemic awareness in children.
- **Synthetic**: Simply learning letter-sound relationships is not enough, as children do not necessarily understand how to connect phonemes in unfamiliar words. Critical skills in phonics instruction are teaching children to *blend* letter sounds to form words, and to *segment* words into their constituent parts. Blending and segmenting are reversible processes and children thus learn part-whole-part relations from an early age. Blending and segmenting abilities help children perceive phonological and morphological patterns in words, which forms the foundation of orthographic mapping. This is the ability to map common letter sequences into larger syllabic and morphemic patterns in long-term memory (*-ku-; -ndV-; -nhlV-; -mngV-; -nhlwV-; -thV-*; where V stands for a vowel) to enable faster recognition of words (*kubaba; indoda; inhlwathi*). Learning to write letters and encode words is an important part of phonics instruction, and spelling skills are built into literacy instruction from the beginning.
- **Corrective feedback**: Because accuracy is important in decoding and errors can change

the meaning of words, corrective feedback in phonics instruction is important for mastery of phonics knowledge and for ensuring accurate decoding.

- **Brisk pacing**: Effective phonics programmes aim to get learners reading as soon as possible, so 2-3 letter sounds are taught a week. Doing phonics slowly has been found to be self-defeating.
- **Decodable texts in the early stages:** An effective phonics programme aims to get learners reading as soon as possible through systematic, explicit instruction and providing opportunities for practice with stories in decodable texts that consist of words containing only the letter-sound relationships that have already been taught. Note that the use of decodable texts applies only during the early stages of phonics instruction. Once children have been taught the basic sounds, they then read authentic texts suitable for their grade level. Researchers argue that in the early stages, learners should practise reading words incrementally, containing only those letter sounds that they have been taught; exposing children to authentic texts in the beginning can make reading effortful and frustrating, as learners are exposed to letter sounds that they have not yet been taught.
- Phonics instruction is needed at **the beginning of the reading journey**. It should not be dragged out across the whole Foundation Phase period but be completed as quickly as possible, ideally by the middle of Grade 2. Although it forms an important part of early reading instruction, it is not exclusive. In other words, adopting a phonics approach does not exclude attention being given to other important components of literacy such as reading storybooks to and with children, developing fluency, language, vocabulary and reading comprehension. The term 'Phonics approach' emphasises the explicit teaching of the code, not the exclusion of other critical elements of early literacy teaching.

Synthetic systematic phonics instruction is used in countries that use an alphabetic writing system. It is for instance used in all Finnish schools (like African languages, Finnish is also an agglutinating language with long, morphologically complex words), where children are taught most of the letter-sounds in the first term of Grade 1 and the blending of sounds is emphasised. Spelling is introduced together with phonics and supports reading acquisition (Aro 2017). In English-speaking countries, spelling has been neglected due to the influence of the Whole Language approach during the 1980s and 1990s, especially in the USA. However, synthetic phonics (and spelling) has been adopted in the United Kingdom and Australia and increasingly in other parts of the English-speaking world. Some 32 of the 50 states in the USA have now mandated its use (Coons 2023).

Criticisms of the phonics approach

Criticism of phonics instruction comes mainly from proponents of constructivism and the Whole Language (and by implication also the Whole Word) approaches, where attention to what are perceived as mechanistic skills is discouraged. Some of the criticisms levelled against the phonics approach to reading are discussed below.

'Reading is about meaning'

A common criticism of the phonics approach is that reading is about meaning and that a focus on phonics detracts from meaning. However, this is a **red herring argument,** as the implication is that teachers who teach phonics are ignoring meaning. This accusation makes teachers vulnerable, for no teacher likes to think that their teaching is not meaningful. In reality, phonics is a means to meaning, not a detraction from meaning. Privileging meaning above all as propagated by the Whole Language followers does not explain how readers arrive at meaning, or what skills they need to enable them to make meaning in written language as opposed to oral language.

There is not a single reading scholar who disputes the claim that reading is about meaning. The issue is not about meaning in reading but about ***how*** young children learn to make meaning in written language, using a code with which they are initially unfamiliar. Reading is complex and comprises many different components, all of which are important in becoming a skilled reader (Adams 1990; Siedenburg 2017; Castles et al. 2018; Snow 2019). It is impossible to read written languages and understand what's in the text without decoding it, whether the text is written in an alphabetic script, a syllabary (an alphasyllabic code as used in written Indian languages such as Hindi) or a logographic script (as in Chinese). Learning how the code works is part of the early stage of learning to read so that the reader can access the meaning of written words.

Furthermore, as Stahl et al. (1998) argue, constructivism is not incompatible with a phonics approach; phonics instruction enables children to become active learners who construct a network of phonics knowledge of letters and sounds, orthographic patterns and spelling that in turn enable them to read and write words and make meaning in written language. As Share (1995) has argued, once children understand the alphabetic principle, phonics knowledge enables self-teaching to kick in. This in turn enables learners to perceive orthographic patterns within words, which increases orthographic mapping, which enables learners to read more words more quickly and become fluent readers.

'Reading is not all about phonics'

Critics claim that in the phonics approach teachers give sole attention to teaching phonics and do not give attention to other important aspects of reading such as comprehension, vocabulary or writing. However, this is a **straw man argument**: there are no phonics advocates calling for a 'phonics only' curriculum**.** Phonics lessons do not comprise the entire literacy curriculum. Phonics takes up a portion of literacy instruction and is typically taught along with other rich literacy activities. Building language and vocabulary, using language (spoken or written) to make meaning remain integral parts of the language and literacy curriculum. Phonics instruction is important for laying down foundational literacy skills, but this does not mean that phonics is the only thing that is important in early literacy instruction.

Furthermore, phonics teaching is one of the constrained components in the teaching of beginning

reading. That means that phonics is taught only while the learner is learning how the alphabetic code works. This includes handwriting and spelling. Once foundational phonics skills have been laid in Grade 1, more advanced phonics work is done in Grades 2 and 3, where the emphasis shifts to developing fluency, advanced spelling, punctuation and structuring sentences and paragraphs. Reading comprehension remains an integral part of the literacy curriculum and can be developed through oral read alouds by the teacher and discussion of the story, and through shared reading.

Maintaining a brisk pace with phonics instruction yields positive results. Ideally, basic phonics teaching and mastery of letter-sound relationships should be completed by the middle of Grade 2. It is all about mastering the written code in order to enable the child to read with understanding.

The National Reading Panel (2000) specifically identified the 'big five' as being important in reading instruction, namely, phonemic awareness, phonics/word reading, reading fluency, vocabulary and comprehension. Early reading instruction has never just been about phonics, but phonics certainly plays an important and foundational role in the initial stages in achieving reading competence. As Rose points out in his report (2006: 4)

> *It is widely agreed that reading involves far more than decoding words on the page. Nevertheless, words must be decoded if readers are to make sense of the text. Phonic work is therefore a necessary but not sufficient part of the wider knowledge, skill and understanding which children need to become skilled readers and writers.*

Although having the knowledge and skills to decode words is fundamental to becoming a skilled reader, teaching children to decode is taught alongside instructional practices that ensure rapidly expanding vocabularies and conceptual knowledge, oral language proficiency, knowledge about different text genres and literacy conventions. This enables children to bring language skills and background knowledge to the task of comprehending what they read. Phonics instruction certainly does not preclude storybook reading, or inspiring and motivating children to read so that they see reading as valuable and desirable and enjoy reading and practice reading regularly.

'Phonics is boring and unnecessary'

The argument that teaching phonics is boring and unnecessary and puts learners off reading is a subjective argument. No empirical evidence is provided by the critics that shows learners who do phonics are bored or that learners who do phonics are put off books and find reading unmotivating. The argument that phonics is unnecessary because children will figure out how the code works when attention is focused on meaning is also not supported by evidence. In fact, there is overwhelming evidence worldwide that many children struggle to learn to read, that struggling readers are those with very little alphabetic knowledge, and that explicit phonics instruction in the early years puts children on a strong reading trajectory.

There are many different ways for children to learn new things, to focus and hold attention, to find something interesting, to enjoy learning and to have fun doing so. Good systematic phonics

programmes in the 21st century are designed creatively and innovatively in ways that are multi-modal, focus and hold children's attention, help them acquire new knowledge and provide opportunities for them to apply their knowledge when reading. Learners readily engage in the activities and enjoy them. Children find phonics programmes such as Jolly Phonics extremely enjoyable and they learn to read and write quickly and with great enthusiasm. As learners' mastery of alphabetic knowledge increases in the phonics lessons, so does their self-confidence in their ability to read, which increases the likelihood of them enjoying being at school and becoming voluntary readers. Research in Nigeria shows that both learner and teacher absenteeism dropped in schools where teachers were taught to use Jolly Phonics (Aleshin 2024) – children were learning to become literate quickly and enjoyably and school became an exciting place of learning.

Furthermore, the argument that phonics is 'boring' and that reading a story is 'fun' is spurious. Simply doing a particular fun activity with children does not necessarily lead to meaningful learning. Reading storybooks to and with children can certainly be a fun activity and children can learn new words and engage with new ideas in a story – if the teacher does it well. If storybook sessions are poorly done (teachers read monotonously, ask only literal questions, don't engage the learners) children may not really learn anything. Likewise with any aspect of teaching, phonics included – teachers need to be well trained and have relevant content and pedagogical knowledge in order to teach properly.

Similarly, insisting that learning must be fun can lead to an overemphasis on activities that are supposedly 'fun' to do but that do not necessarily result in the development of foundational reading skills. Learning can also happen even without children having fun all the time. The Story Powered schools (SPS) project of Nal'ibali aimed to develop and sustain a culture of reading for enjoyment in 720 primary schools in the Eastern Cape and KwaZulu-Natal. It focused on nurturing a love of reading, in mother tongue and English, to spark children's potential and unlock their capacity to learn. Over 8,700 Grade 2, 3 and 4 learners were assessed in mother tongue and English at baseline and endline. In an evaluation of the SPS project using a randomised-control trial, the evaluators found that the learners' foundational reading skills in the SPS intervention schools were no better than those of learners in the control schools, even though the learners were enthusiastic about the reading clubs, said they loved reading and did plenty of fun activities in the reading clubs, (Ardington, Hoadley & Menendez 2019). Qualitative case studies of activities in the reading clubs showed joyful singing, cut and paste and drawing activities but little evidence of learners engaging with text and actually reading books.

The argument that phonics puts learners off reading is also not supported by evidence. Moats (2020) stresses the fact that learning to read is not natural but rather an acquired skill that needs to be taught and that reading is difficult for many children. If phonics is taught correctly in the early grades, learners master reading quicker, their progress is faster, and they enjoy it more. Reading then becomes a self-reinforcing cycle, increasing the chances of learners reading more and reading for pleasure. Learners who have very little phonics knowledge struggle with reading and are thus more likely not to want to read.

Instructional challenges relating to synthetic phonics

As with all methods, inadequate teaching of phonics is a problem. In their report, ***Meeting the Challenges of Early Literacy Phonics Instruction*** (2019), the International Literacy Association states that "*phonics instruction is helpful for all students, harmful for none, and crucial for some*". However, the report identifies (pp. 6-9) some common causes of instructional failure in phonics programmes. Their relevance to the South African context is described below.

- **Inadequate time devoted to mastering a new phonics skill such as blending (at least 4–6 weeks is recommended).** Phonics is not just about teaching letter sounds, it's also important to teach children how to blend the sounds together. This skill (blending letter sounds to form words) seems obvious (to those who are skilled readers!) but it does not come naturally to all children. Teaching children letter sounds and how to blend them should be integral to phonics lessons and should start in Term 1 of Grade 1.
- **Lack of application to real reading instruction.** Teaching phonics is not an end in itself: it is a means to an end, so each phonics lesson should clearly show learners how their phonics knowledge is used to read words and text. Phonics is not just about teaching letter-sound relations, it also includes blending and using phonics knowledge to read new, unfamiliar words alone as well as in extended text.
- **Inappropriate reading material to practise the skills.** In developing country contexts such as South Africa, the lack of reading material in African languages remains a challenge, especially decodable texts that reflect the letter-sound sequences taught in the phonics programme of a particular language. Although far more reading material for Foundation Phase learners is now available in African languages than was the case 10-15 years ago, the availability of a range of decodable as well as graded readers remains a challenge.
- **Too much teacher instruction, and too little reading by the learner.** A good phonics programme allows for explicit, teacher-based instruction but it should also be complemented by learner-based and learning-based activities, following a gradual release model of teaching.
- **Lost time during instructional transitions.** In Foundation Phase instructional time is spread across several aspects of reading (Phonics, Read Alouds, Group Guided Reading, etc). If lessons are not well planned, well structured and well managed, valuable teaching-learning opportunities can be lost in the classroom on a daily basis. Learners must know what to expect when they transition to phonics: having consistently structured phonics lessons helps learners know what to expect and the routines that are followed. This helps them to revise former sounds taught, concentrate on the new letter sound being learned, how it is formed, how to write it, and how to blend it with other known sounds to form new words to read and write.
- **The teacher's attitude to and knowledge of phonics instructional material is important.** If teachers themselves do not properly understand phoneme-grapheme mapping in their language (e.g., confusing sounds, phonemes and syllables, or confusing

digraphs and trigraphs with consonant blends, or failing to distinguish grapheme sets within consonant blends), this can hamper the way they teach phonics.

- **Lessons that are not fast-paced and rigorous.** South African research has shown that the pace of teaching in many classrooms is often very slow and operates at a low cognitive level. Phonics programmes that are drawn out over 2-3 years are not effective.
- **Lack of assessments over an extended period of time.** Learners' progress in reading should be assessed regularly and recorded over the duration of each grade. Assessment is an integral part of teaching and provides the teacher with important feedback as to who is on track and who is struggling. It is essential for the teacher to identify learners who do not progress satisfactorily early and to assist such learners by implementing appropriate interventions.
- **Waiting too long to transition to multi-syllable words.** In the South African context, most words in African languages are multisyllabic and may even comprise whole sentences. It is important for children to start reading longer words and texts as soon as possible, not just single words.

In the South African context, critics of the phonics approach have blamed the poor literacy outcomes in PIRLS on 'too much phonics' at the expense of meaning and attention to reading comprehension. However, such criticism fails to specify what 'too much phonics' entails or why so many children exit Grade 1 without knowing letter sounds or being able to read simple sentences in their home language. Teachers who get learners to do phonics drills repeatedly or chorus syllables like *ba, be, bi, bo, bu* from the chalkboard in a set sequence are not following a synthetic phonics programme. Whatever pedagogic model they are following it is not phonics. As Pretorius and Spaull (2022:14) have argued,

> *Identifying 'phonics' as the problem misdiagnoses the problem; in reality it is a style of pedagogy reflecting a lack of individualised instruction, low cognitive demand and slow pacing. When more than half of South African learners do not know the letters of the alphabet by the end of Grade 1, we argue that it is clear they are not receiving efficient phonics instruction.*

It is important for teachers to have a good understanding of what synthetic phonics entails so that children can benefit from an early reading approach that has repeatedly been shown to be effective in launching children on healthy reading trajectories from the start of schooling.

Evidence for phonics in early literacy instruction

In this section we examine evidence in support of phonics instruction in the early years from three main sources, namely contributions from findings from psychology, cognitive and neuroscience, findings from expert reading panels, and evidence from research undertaken in low- and middle-income countries (LMIC) whose educational contexts are similar to South Africa.

The contributions of cognitive and neuroscience research to phonics instruction

Research from the related fields of psychology, developmental psychology, cognitive science, remedial studies (studies that specialise in children with learning difficulties) and linguistics have consistently generated findings that do not support Whole Language assumptions about the way children learn to read.

Many past and current theories of reading (e.g., Chall, 1983, 1996; Adams 1990; Ehri, 1998; Perfetti & Hogaboam, 1976; LaBerge & Samuels, 1974;Castles et al. 2018) make a common claim that multiple language, cognitive and code-based skills related to reading are learned during childhood, at home and in school, and they become coordinated into increasingly automatised reading during the early years of schooling, typically Grades 1-5. The theories regard skills as components to be acquired and integrated, and the main controversies in the so-called 'reading wars' have been arguments about the importance of decoding in reading comprehension.

In cognitive science (Geary 2005) a distinction is made between biologically 'primary' systems hardwired into the brain, like language and recognising faces, and school-taught 'secondary' knowledge, like learning to read and do maths. This distinction is based on how the human brain evolved over thousands of years to ensure human survival. Brain and cognitive perceptual biases will, for example, orient infants to attend to human faces and human speech sounds. Specific parts of the brain have evolved to process oral language. Infants are biologically biased to look at their parents and other human faces, and parents are biased to talk to their young children and to engage them socially. It occurs for most people naturally and automatically (without thinking about it), as it is part of the behavioural and brain components of these primary systems. Aspects such as working memory, attentional control and motivation do not play a major role in this kind of learning because the learning 'kicks in' automatically. As human societies got larger and more complex, cultural and technological innovations arose to keep records of and manage the new trading, financial, administrative and governance demands. This gave rise to new knowledge areas that were not originally part of our original primary behavioural and brain systems. The secondary knowledge systems, like literacy and mathematics, are very different as they involve changing brain networks and brain systems to process information they weren't originally designed to process. It involves getting the brain to do something it has not evolved to do easily. As Geary points out, the brain can learn these new things, but it does not happen easily or automatically. As cognitive load theory has shown, working memory, attentional control and motivation become important in acquiring these secondary knowledge systems. Without explicit instruction and formal schooling these secondary knowledge systems are difficult to acquire (Geary 2005).

Psychology and cognitive science does not provide all the answers on how to teach children to read, but on the question of how skilled readers read words, scientists have amassed a huge body of evidence across alphabetic writing systems about how children learn to read, the

foundational skills that enable early reading trajectories to 'take off', what factors support or can impede early reading development and how skilled readers differ from struggling readers.

Research from neuroscience has brought much clarity to the way the brain reads and supports the science of reading claim that phonological processing is key to reading in alphabetic orthographies. The contribution of neuroscientists to understanding the processes that occur in the brain when we read has helped to cool the heated debates that raged in the reading wars, but even so, there is still a lack of awareness amongst many educationists as to what is currently known about how the brain reads written language. Dehaene (2009:2) comments as follows on the effect of neuroscience or lack thereof on the teaching profession:

> *Decision makers in our education systems swing back and forth with the changing winds of pedagogical reform, often blatantly ignoring how the brain actually learns to read. Parents, educators, and politicians often recognize that there is a gap between educational programs and the most up-to-date findings in neuroscience.*

Research based on brain imaging provides strong empirical support for phonics instruction as an effective way to teach reading in alphabetic languages. The synthetic phonics method of teaching reading results in new neurological pathways being established in the brain, a process that occurs haphazardly if a child is taught reading incidentally and encouraged to guess words.

> *The goal of reading instruction is clear. It must aim to lay down an efficient neuronal hierarchy, so that the child can recognize letters and graphemes and easily turn them into speech sounds.* All other aspects of the literate mind depend on this crucial step *(our emphasis.) …*
>
> *Considerable research converges on the fact that grapheme-phoneme conversion radically transforms the child's brain. This process must be taught explicitly. It does not develop spontaneously; it must be acquired (Dehaene 2009:219).*

The first priority of beginning (and remedial) reading instruction is to make sure the phonological decoding pathway is well developed, because without it there will never be good reading. Over the last 20 years a number of brain imaging studies have shown that the right kind of reading instruction can rewire the brains of struggling readers and assist them to become good readers. Findings from neuroscience compel Dehaene (2009: 227) to conclude:

> *Performance is best when children are, from the beginning, directly taught the mapping of letters onto speech sounds. Regardless of their social background, children who do not learn this, suffer from reading delays.*

Neuroscientific research with struggling readers as well as children with dyslexia has produced very promising and encouraging results, showing that targeted, intensive phonics-based programmes not only lead to substantial improvements in reading skills, but also change the underlying development of the brain's reading circuits.

Findings from reviews or expert reports

This section provides a brief overview of evidence derived from expert reviews or expert panels that were commissioned to examine early literacy instruction and make recommendations based on evidence.

In the English-speaking world, there have been repeated efforts to resolve conflicts in education regarding the teaching of reading in the early years by appointing an expert panel. In such cases, an expert undertook a review of available research at the time, or a panel of experts was appointed to review existing research findings and make relevant recommendations based on current findings. It is instructive to consider the following reviews, reports and their conclusions:

- Chall (1969;1986) *Learning to read: the great debate:* Chall concluded that systematic phonics was more effective in the initial stages of learning to read.
- Anderson, Hiebert, Scott & Wilkinson (1985) *Becoming a nation of readers*: The scholars concluded that children need to learn the alphabetic principle and that children who are taught phonics systematically and explicitly "get off to a better start in learning to read" (p. 37). However, they cautioned against phonics approaches that consume teaching time and recommended that other aspects of reading are done in conjunction with phonics.
- Adams (1990) *Beginning to read: Thinking and learning about print*: In her extensive review of reading research studies, Adams recommended explicit and systematic phonics instruction in early reading as a critical component in becoming a skilled reader.
- Snow, Burns & Griffin (1998) *Preventing reading difficulties in young children:* In this report, commissioned by the National Research Council, the panellists gave particular attention to children who struggle with reading. They emphasised explicit phonics instruction, along with other rich literacy activities.
- National Reading Panel (NRP 2000): The National Reading Panel was convened by the USA Congress and comprised a large panel of experts from across the country. They undertook an extensive review of the then current literature. They identified five essential components of reading as being important in any reading programme, namely phonological awareness, phonics, reading fluency, vocabulary and reading comprehension. These essential components became known as the Big Five. The NRP emphasised instruction in phonological awareness and phonics in the early years.
- National Early Literacy Panel (2008): This involved a meta-review of early reading development. They confirmed and refined the findings of the NRP (2000) and stated that phonics was important in early reading instruction.

During the 2000s other English-speaking countries, notably Canada, Australia and the UK also initiated large-scale research reviews to determine the best way to teach reading. These initiatives took place independently of each other and were prompted by the concern that the different approaches to teaching reading followed in schools in the relevant countries may not all be beneficial to children's reading development.

- Canada: Ontario Ministry of Education, Canada: Review of scientific research on reading (2003). Based on the large body of scientific research available at the time, the reviewers recommended that explicit phonics instruction must be part of early reading instruction.
- Britain: The Department of Education and Skills commissioned a review of approaches to teaching reading, as contained in the *Rose Report* (Rose 2006). This led to the updating of government guidelines to require the teaching of synthetic phonics as the first and main strategy for early reading instruction.
- Australia: Australia's National Inquiry Report on reading entitled *Teaching Reading: Report and recommendations* (2005) called for literacy teaching to be grounded in findings from rigorous evidence-based research. The report stated that "direct systematic instruction in phonics during the early years of schooling is an essential foundation for teaching children to read" (Rowe 2005: 11) and that children are provided with the best opportunities for success in learning to read when teachers integrate the Big Five of reading into early reading programmes. In 2015, an Australian report by the New South Wales Department of Education (Bradford & Wan 2015) maintained that the Marie Clay's Reading Recovery programme was largely ineffective and was unfit to be used for most children. This resulted in the diminished use of the three-cueing/Searchlight method for word recognition. In June 2024, the state of Victoria in Australia mandated that as from 2025, all state schools will teach early reading using synthetic phonics in the first three years of school. All states in Australia now provide explicit synthetic phonics instruction across all state schools.

Across all these review initiatives, the reports found that early, explicit and systematic instruction in phonological awareness and phonics benefit all children, can prevent reading difficulty and can remediate reading difficulties. While some may regard these reviews as not being relevant for reading in African languages since they are concerned with English reading instruction, the findings are relevant across all languages that use an alphabetic writing system.

Evidence from education reform initiatives in LMIC education contexts

Research findings from global education reform initiatives in LMIC (low- and middle-income countries) education contexts also consistently show that skill-based learning and explicit instruction across all content subjects lead to better learning outcomes (Evans & Acosta 2020; Nakamura et al. 2023); in literacy instruction in particular, phonics interventions have been found to be more effective in improving reading outcomes than interventions using meaning-focused reading instruction (Moore et al. 2017). The overwhelming evidence that phonics is helpful in early reading instruction is probably one of the most consistent empirical regularities to emerge from fifty years of scientific research across alphabetic languages.

In South Africa there have not been any official reviews of research on early reading instruction. After the new democracy in 1994, an outcomes-based education (OBE) curriculum was introduced across schools in 1998. It was underpinned by constructivist learning theory that

is strongly learner centred, seeing teachers as facilitators, and which downplays explicit instruction, skill development and domain knowledge (Muller & Hoadley 2019). This approach was influenced by the Whole Language approach to reading instruction, viewing reading as a holistic process, and regarding the teaching of decoding skills as reductionist and mechanistic. No attention was given to phonics or the development of reading fluency.

In 2002, the curriculum was modified slightly as the revised National Curriculum Statement, giving slightly more attention to content, but basically retaining its constructivist and Whole Language tenets (Hoadley 2017). However, continued poor learner performance in both national and international assessments and increasing public criticism resulted in another review of the curriculum in 2009 (Dada et al. 2009). This gave rise to CAPS, which was published in 2011 and implemented in 2012. Compared to the preceding curriculum, content knowledge is more strongly specified in CAPS, explicit instruction is legitimised, the pacing and sequencing of learning activities are more clearly stipulated, formative and summative assessments are required, and textbooks and resources feature more prominently.

The 2011 CAPS curriculum inclines to a balanced approach. It introduced phonics instruction into the Foundation Phase Language and Literacy curriculum, but it also recommends the multi-cueing strategy. This may have been seen as a means to reconcile opposing views of early reading instruction between social constructivism and Whole Language on the one hand, and on the other hand a trend to more structure and explicit teaching and the development of basic skills, supported by evidence from the science of reading and education research from developing countries.

The phonics approach in CAPS 2011 was premised mainly on the teaching of English phonics and provided little guidance to the teaching of phonics in African languages. In response to this weakness, the Department of Basic Education initiated the *National Framework for the Teaching of Reading in African languages* (Department of Basic Education, 2020). However, it came out shortly before the Covid epidemic and two months later the nation went into lockdown and other issues took precedence. In 2023 the Department of Basic Education put together language teams to draw up a framework for teaching phonics in African languages.

Conclusion

This unit has focused on componential views of reading as reflected in instructional approaches that emphasise the importance of phonics knowledge in early reading. It provides a brief overview of different phonics approaches over the years, resulting in the design of systematic, synthetic programmes in the 21st century. Criticisms of phonics instruction by proponents of Whole Language and constructivism were identified and discussed in light of the overwhelming support in favour of phonics instruction in early reading instruction across alphabetic languages.

Self-assessment activities

These are 'quickie' assessment activities to check how well you have understood key concepts discussed in this unit and whether you are able to perceive the pedagogical implications of such concepts in the teaching of reading.

Note: The key to these self-assessment activities is given in the Appendix at the end of this module. If you score less than 6/8 (75%) for these questions you are advised to re-read the unit again to strengthen your content and pedagogic knowledge.

1. In each of the statements below provide **the appropriate missing word (or words)**. (5)

   a) The most widely favoured phonics approach to teaching reading is a systematic _____ phonics approach also referred to as _____ phonics. (2)

   b) In synthetic phonics the learners are explicitly taught letter sounds one by one, following a specific scope and sequence, influenced by two principles, 'easy before complex' and _____of occurrence of a sound in the language. (1)

   c) A synthetic phonics lesson does not start with a text and then get learners to identify words within the text and letter sounds within words. Instead, it starts with a specific _____ _____ and then provides practice opportunities for learners to see, hear and write it in words. (1)

   d) The ability to put letter sounds together to form words is called _____. (1)

2. Indicate which one of the following statements is **false**. (1)

   a) Two important skills in phonics are the blending of sounds to form words and breaking down words into their constituent sounds.

   b) Giving corrective feedback on accuracy in reading and handwriting is important for developing skill in decoding.

   c) Instruction of letter sounds should ideally be taught for the full duration of the Foundation Phase.

   d) Decodable texts are a controlled way of offering the learners the opportunity to recognise letter sounds that they have learned in words and to use blending as a strategy to form words.

3. Indicate which of the following statements is the **correct** one. (1)

a) Learners' phonics knowledge will have a direct influence on their ability to read words, even words that they have not encountered.

b) The problem with teaching phonics is that it leads to a phonics only curriculum.

c) Teaching phonics can interfere with learners developing a love of reading.

d) Doing fun activities with learners when teaching reading will naturally lead to reading with comprehension.

4. Consider the following scenario and then select only **the option** which is likely to be **an inaccurate reflection** of this scenario. (1)

Some Foundation Phase teachers are sitting around a table during breaktime, discussing an article that one of them downloaded and printed from an Australian education website and shared with them. Parts of the article, entitled ***Making Best Practice Common Practice In The Education State,*** *read as follows: "As of 2025, systematic synthetic phonics will be mandated in all classrooms in the first three years of school. This means Victoria is the last Australian state or territory to formally abandon balanced literacy… All students from preschool to Grade 2 will be taught using a systematic synthetic phonics approach as part of their reading programs, with a minimum of 25 minutes daily explicit teaching of phonics and phonemic awareness. This will be a core component of a comprehensive reading program that also includes explicit teaching of oral language, vocabulary, reading fluency and comprehension. …The evidence is clear from Victorian schools and reviews conducted by research organisations like the Australian Education Research Organisation and the Grattan Institute – showing explicit teaching works best for the largest number of students, particularly capturing those who may be struggling" (https://www.premier.vic.gov.au/making-best- practice-common-practice-education-state). The teachers' reactions to the article are interesting as they reflect different teacher perceptions of early reading instruction. For example, after reading the article, Teacher X said that she had always thought that a phonics approach to teaching reading meant phonics only, but she can see from this article that it is not the only component. Teacher S commented that while the developments in early grade reading instruction in Australia were interesting, they were applicable to teaching reading in English and were not relevant to African languages. Teacher W agreed with her and said that reading instruction in African languages is completely different. Teacher B noted with interest that explicit phonics instruction was expected to be completed by Grade 2 in Australia – "Eish, I wonder why CAPS still teaches phonics in Grade 3. Children should be reading fluently by then, not still learning letter sounds!" Teacher L said that the Australian decision was wrong because phonics does*

not focus on meaning and that struggling readers should rather be motivated to love reading books as that would help them overcome their challenges.

a) From the above scenario it seems that Teacher X used to think that a 'core component' meant 'the only component'.

b) There is research that supports Teacher B's views that a slow phonics pace can delay the development of alphabetic knowledge and orthographic mapping that leads to skilled reading.

c) From the above scenario it seems that Teachers S and W are aware that although languages are all different, there are generic aspects of learning to read that are similar across alphabetic writing systems.

d) From the above scenario it is likely that a Whole Language approach to reading formed part of Teacher L's in-service teacher training.

Unit 4: The way forward

Introduction

As discussed in previous units, there are competing views of reading, of how it develops and how it should be taught. There are also many competing views and opinions on the low literacy outcomes in South Africa. As you are by now aware, reading research is informed by a range of disciplines, such as linguistics, psycholinguistics, psychology, developmental psychology, cognitive science, neuroscience, sociology, social anthropology, cultural studies, semiotics, education and special needs education. Each of these disciplines brings to reading research its own particular interests, foci, and ways of doing research. All these insights contribute to a more comprehensive understanding of the complexity of reading. Across all these disciplines, research evidence is important for supporting or refuting claims about reading, its development and best instructional practices.

The purpose of this unit is to briefly review current understandings of early reading development and factors that can bring about high or low reading outcomes. The review focuses especially on African languages and considers findings from longitudinal data from South African research in the past 10 years and how this relates to what is known about early reading development in alphabetic languages generally, and in South African languages specifically. It summarises our current state of knowledge based on empirical evidence and points out some of the issues that await further research in our multilingual education context.

Research on reading in South African languages

Previously, reading specialists in South Africa relied on findings from international reading research to try to understand early reading development and challenges in the South African context. Since 2006, when South African first participated in the Progress in Reading Literacy Studies (PIRLS) we have had large-scale data on Grade 4 learners' reading comprehension performance in all 11 official languages. Although South African learners fare very poorly, being the poorest performing learners of all participating PIRLS countries across the four cycles in which we have participated, the results showed some encouraging signs of improvement, albeit still at the very bottom end of achievement (Gustafsson & van Staden 2019; van Staden 2020). For example, in 2006 only 13% of SA learners could read for meaning, and by 2016 this had increased to 22%. Unfortunately, Covid impacted negatively on learners' reading abilities, not only in South Africa but in many countries around the world. In the 2021 PIRLS results, the number of Grade 4 learners who could read for meaning disappointingly dropped to 19%.

However, although PIRLS has provided us with valuable information on reading comprehension, it assesses reading comprehension only and not the foundational knowledge and skills essential for successful reading. For many years South Africa lacked data on foundational language and

early reading skills that support reading comprehension, such as listening comprehension, alphabetic knowledge, decoding skills or reading fluency, especially in African languages.

However, interest in local reading research has flourished in the past decade, and besides a plethora of smaller individual studies, several large-scale studies have been undertaken in provinces across South Africa,[4] where learners have been assessed at different time points on language and early reading skills, providing a longitudinal perspective on early language and reading development in African languages. These large studies follow a randomised control design, where learners were assessed in intervention schools as well as control schools in the same districts (in intervention schools, the teachers are expected to follow a specific approach to early reading instruction, while in control schools, it is 'business as usual'). Such studies are useful for seeing what works and what doesn't when reading interventions are taken to scale (i.e., when interventions are implemented in many hundreds of schools).

In addition, the more recent Reading Benchmarks project initiated by the Department of Basic Education (2020–2023) collated these large data banks but also added more data to them by undertaking further learner assessments on language and literacy across grades in all the languages across the provinces, including the Nguni and Sotho languages as well as Xitsonga, Tshivenda, Afrikaans and English as First Additional Language. There is data from well over 60,000 learners in the data bank, probably the largest of its kind on the African continent, across various schooling contexts (although mainly Quintile 1-3 schools were involved).

Furthermore, there have been several large studies that have assessed and tracked aspects of early language, literacy and numeracy skills at preschool level in nine official languages and across all provinces. These include the Early Learning Outcomes Measures (ELOM) of preschool children to determine the extent to which they develop motor, cognitive, socio-affective, language, literacy and numeracy skills needed for school entry and to identify aspects of Early Child Development (ECD) programmes that need improvement. These include the ELOM 4-5 studies (of 4-5 year-olds), ELOM 6-7 studies (that focuses on how well Grade R prepares learners for Grade 1); the WELA studies (Wordworks Early Literacy Acquisition) that also focus on the Grade R to Grade 1 transition; and the *Thrive by Five* project in the Western Cape that assesses language and literacy readiness in isiXhosa, English and Afrikaans.

South Africa is now in the fortunate position of having very large and rich data collections on various aspects of learner language and reading performance that provide vital local information on early reading trajectories. There is also ongoing research on the reliability, validity and multilingual equivalence of assessment tools of early language, literacy and numeracy across the

[4] The following studies provide rich quantitative data on language and early reading skills, as well as qualitative data on classroom practices and how teachers respond to proposed teaching reforms: EGRS I study in NW province involving Setswana learners; EGRS II study in Mpumalanga involving isiZulu and Siswati learners in Home Language and EFAL; the Funda Wande studies in the EC and Limpopo, involving isiXhosa and Northern Sotho learners; the Room to Read studies on Northern Sotho; the Nal'ibali Story Powered Schools project in EC and KZN involving isiXhosa and isiZulu learners.

official languages. In some of these data banks, the same learners have been tracked at different time points within grades (e.g., in Term 1 and again in Term 3), as well as over successive grades (in Grades R, 1, 2, 3, 4 etc.), thus providing a longitudinal perspective of their reading development (some learners have been tracked from Grade 1 right up to Grade 7!). All this data has provided a fairly clear picture of what reading development looks like within each grade as well as across grades.

Although the PIRLS results are quite well known and have been released and discussed in the public domain, less well known are the findings about early reading development that are reflected in these more recent large-scale studies. These are also available in the public domain from relevant websites such as Funda Wande, Room to Read and the Department of Basic Education (the EGRS I and II reports and the Reading Benchmarks Reports for all the languages can be downloaded from the relevant websites). The diverse views and opinions on the reasons for the low reading performance of South African learners need to take heed of all these findings. It is important to consider the PIRLS results on reading comprehension in relation to all the data that is now available on the early foundational reading skills and to take note of the consistent patterns and empirical regularities that are evident in all these studies.

For example, in PIRLS, the Low International Benchmark (LIB) refers to learners who have 'basic' reading comprehension skills (400-474 points). These are children who can make some sense of the text 'surface' when reading. In other words, when reading a text on their own these readers can answer some of the questions (usually, literal questions relating to explicitly stated information in the text, and also some questions requiring straightforward inferences). These are the kinds of questions that are regarded as 'easy'. In the 2016 round of PIRLS assessments, 96% of children internationally could read at the LIB, while in South Africa only 22% of Grade 4 learners could read at (or beyond) this basic level, which left 78% of SA Grade 4s not yet reading even at this basic level (Howie et al. 2017), compared to only 4% internationally. In 2021, 81% of Grade 4 learners in South Africa could not read at this basic level. There is very little meaning making happening for readers who read below the LIB. (Bear in mind that in South Africa, PIRLS is assessed in all 11 languages. Grade 4 learners are assessed in the language that was their LoLT in Foundation Phase.) These consistent results point to very weak reading levels indeed, suggesting that these learners may lack basic decoding skills that support reading comprehension. However, because PIRLS tests reading comprehension only, not decoding or reading fluency, conclusions about poor foundational reading skills could be inferred only indirectly from the PIRLS results. Now, findings from recent large-scale studies in South Africa not only consistently show that (i) many preschool learners have poor language skills when they enter Foundation Phase, (ii) most learners leave Foundation Phase with poorly developed foundational reading skills, and (iii) learners with poor decoding and reading fluency skills in any grade struggle with reading comprehension, indicating a relationship between decoding ability and reading comprehension. It is now easier to 'connect the dots' from the top down and the bottom up when considering the low reading performance in our schools and ways to turn it around.

The complex and multifaceted nature of reading

As pointed out in Module 1, complex systems such as reading are made up of many different facets. Figure 10 below, taken from Module 1, is reproduced below to remind us of the complex web of factors that make up reading. When studying complex systems, it is important to recognise the multifaceted parts that make up the system, and how they develop and interact with one another. In addition, it is important to understand how conditions in the external environment may affect the development and functioning of complex systems in different ways. Here external conditions such as home, school, larger sociocultural community and socioeconomic factors are considered, as well as access to resources, books, the content in books, etc. By examining the system (with all its parts) in relation to contextual factors, it is possible to see how individual or local variations exist within complex systems. This in turn enables generic principles or patterns to be distinguished from specific or local ones. One of the most fundamental generic principles of reading in alphabetic writing systems is that spoken language is represented at the phoneme-grapheme level, so we start our overview there.

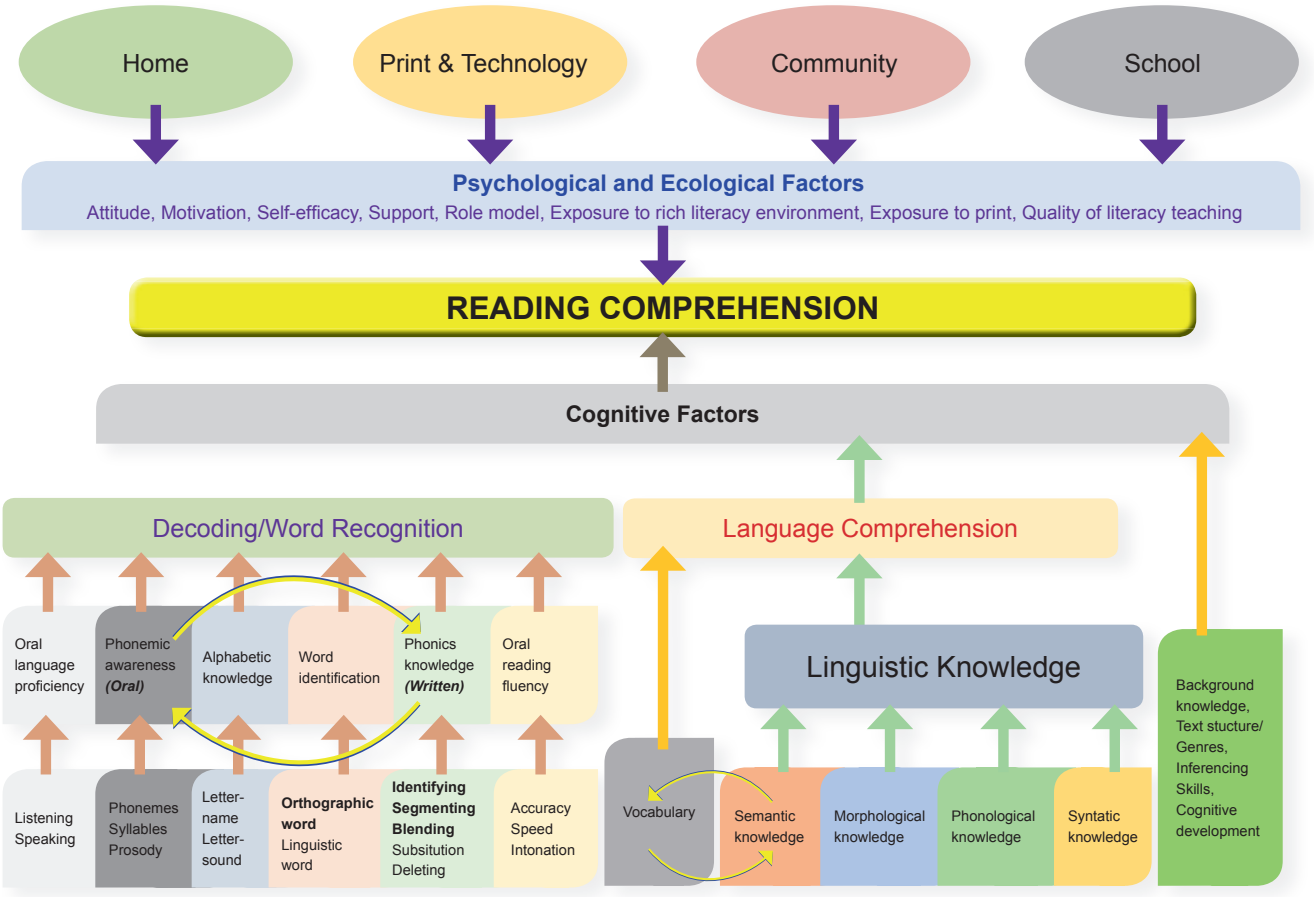

Figure 10: Psychological, environmental, cognitive, linguistic and code factors that influence reading

Alphabetic knowledge: What do we know and what do we still need to know?

One of the most consistent research findings from both international and local reading research is that in alphabetic languages (and thus in the African languages as well) word reading and reading comprehension is not possible without letter-sound knowledge (Adams 1994; Share 1995; Caravolas et al. 2013; Aro 2017). Most primary grade learners who struggle to read struggle because of their inability to decode, and decoding starts with alphabetic or phonics knowledge.

The results from the Reading Benchmark project show that over half of Grade 1 learners (up to 60-70% in some schools) know very few or no letter sounds by the end of Grade 1, and the few letter sounds they do know tend to be easy, single letter sounds (Wills, Ardington & Sebaeng 2022). Furthermore, this lack of phonics knowledge has systematic negative consequences for learners: children who don't know or know only a few letter sounds in Grade 1 cannot read words in Grade 2, they read very slowly and they continue to struggle with reading right up to Grade 7, reading slowly and performing poorly in reading comprehension. Figure 11 below shows this trend in Setswana learners who were tracked from Grade 1 to Grade 7. Based on the learners' phonics knowledge at the end of Grade 1 (G1 T4 on the bottom left side of the graph), four groups of readers were identified:

- those who had little or no phonics knowledge – striped red line;
- those with limited phonics knowledge (10-25 letters) – striped blue line
- those with some phonics knowledge (26-39 letters) – dotted grey line
- those with basic phonics knowledge (40 letter sounds or more) – solid blue line.

The reading trajectory of these four groups of readers were then tracked up to Grade 7.

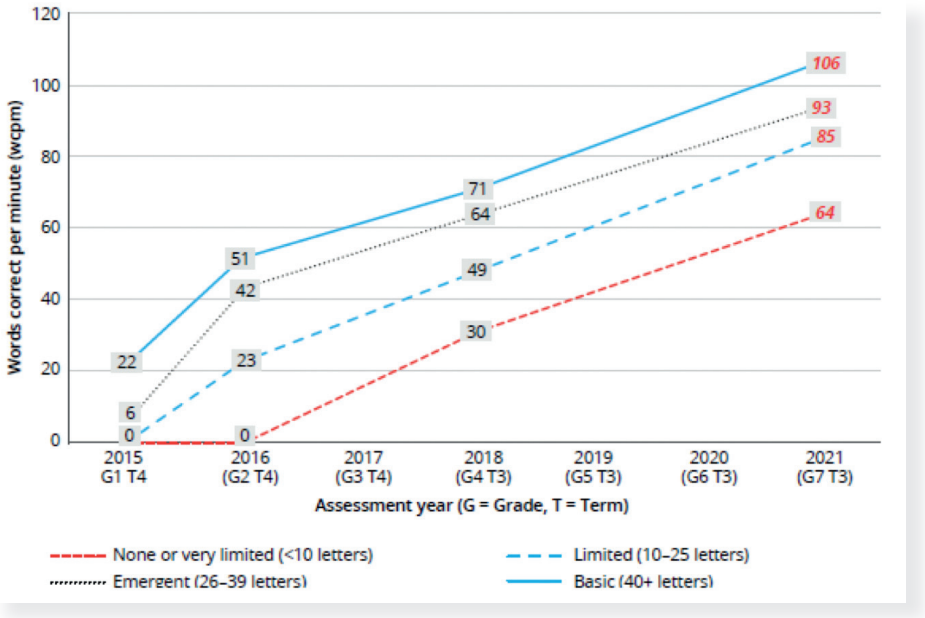

Figure 11: Phonics knowledge in Setswana and its effects on reading in primary school

As can be seen from the graph, the amount of phonics knowledge acquired in Grade 1 determined the learners' reading trajectories. Learners with the most phonics knowledge could read 22 wcpm by the end of Grade 1 and by the end of Grade 2 they were reading 51 wcpm, well above the minimal Sotho oral reading fluency benchmark of 40 wcpm for Grade 2. Those who started off with poor phonics knowledge (the striped red and blue lines) continued on a slow trajectory, never catching up with their more skilled peers. By the end of Grade 4, they had not yet reached the Grade 3 oral reading benchmark of 60 wcpm for Sotho languages. The weakest group of all who had little to no phonics in Grade 1 and 2 reached the Grade 3 oral reading fluency benchmark only in Grade 7, four years later. Similar trends were found across all the African languages, not just in Setswana. Similar trends were also found amongst learners learning to read in Afrikaans and in English as First Additional Language.

Any approach to early reading instruction needs to take these empirical realities into account. When more than half of South African learners do not know the letter sounds of the alphabet by the end of Grade 1, then it is clear that Grade 1s are not acquiring proper letter sound or blending knowledge that enables them to read words. Although the ability to decode words accurately and quickly is only one aspect of reading, successful text reading and reading comprehension rely heavily on this ability. The ultimate goal in reading is to determine the meaning of individual words in print, understand their relationships to other words in the sentence and construct the overall meaning of the text in which the words and sentences occur.

Phonics instruction is important in the early years across all alphabetic languages. Whatever is happening in our Grade 1 classrooms, learners are not receiving effective phonics instruction. In South Africa, more research is needed to better understand how phonics instruction in African languages can be improved so that all learners can get off to a good start in reading, irrespective of the school they attend and the language in which they initially learn to read. Bear in mind that ideally children should learn to read (and write) in their Home Language first. If they master reading in the Home Language the bulk of the acquired competencies can be transferred to enable them to read in the First Additional Language and any other language(s).

Oral language proficiency: What do we know and what do we still need to know?

Apart from being important for successful communication and social interaction and also for learning in general, oral language proficiency in a particular language is also important for reading and writing in that language (see Module 2). All approaches to reading instruction recognise the importance of oral language proficiency for reading comprehension. The Simple View of Reading identifies oral language proficiency as an essential component of reading comprehension, along with decoding.

Oral language proficiency can be assessed in various ways. In the early years it can be done by assessing learners' listening comprehension, spoken language competence as determined by a story retelling task, or by assessing vocabulary knowledge or morphological and syntactic

awareness. The better learners perform in these language tasks, the better their reading ability.

The study of oral language proficiency and its development is an area that does not have a long history of research in South Africa and until the ELOM studies were undertaken, very little was known about early language skills across our various official languages. In this subsection, we focus on listening comprehension and story-telling tasks, as this is how oral language proficiency has been assessed in several large-scale South African studies (vocabulary and morphology will be discussed later in separate sections.) Large-scale preschool studies such as the *Thrive by Five* and the ELOM projects have assessed language proficiency using a listening comprehension task as well as a story-telling task derived from a picture sequence. These preschool studies show that many learners start preschool with poor language skills in their home language (Hofmeyr 2021; Datafirst 2016-2023). In addition, the Reading Benchmark project shows that Grade 1-3 learners have poor oral language proficiency in their home languages (Ardington et al. 2021; Will et al. 2022). Studies have also shown a strong association between listening comprehension and reading in both Nguni and Sotho African languages (EGRS I and II studies; Wills, et al. 2022; Schaeffer & Kotze 2019), confirming the claims made by the Simple View of Reading. There are still many details that need to come to light about oral language development in African languages and its relation to reading ability, so this is an area that calls for more research.

Oral language proficiency, multilingualism and reading: What do we know and what do we still need to know?

Many children in multilingual societies grow up hearing and knowing more than one language. Their parents may speak more than one language in the home, they may be exposed to a particular dialectal variant of a language, or they may grow up in multilingual communities, particularly in larger urban areas. By the time they come to school they bring a wealth of linguistic, cognitive and social resources that can support their learnings in the formal schooling context. Research also unequivocally shows that language is part of our identity and that reading is a form of social practice.

There are numerous sociocultural and sociolinguistic studies worldwide that examine the linguistic, social and identity aspects of literacy and learning in monolingual and bilingual or multilingual contexts. Such studies indicate that knowing more than one language (or dialect) confers many social benefits, facilitates social coherence and tolerance between groups and also develops cognitive flexibility and fluidity in learners. In South Africa numerous children, especially in urban areas, grow up speaking two or more languages, some of which may be dialects or non-standard variants of the standardised written languages that serve as LoLT in Foundation Phase. There are several scholars in South Africa who examine the multilingual, multicultural nature of learning and the role of translanguaging in learning (Makalela 2015; McKinney 2017; Guzula 2019; van der Walt & Pfeiffer 2021), and more studies are being undertaken on learning and teaching in multilingual classrooms than was the case a decade ago. These studies draw attention to the wealth of linguistic resources that multilingual learners bring

to schooling and how understanding and learning can be facilitated by translanguaging practices.

However, it is important to recognise that *oral* multilingualism in and of itself does not automatically foster *reading* ability or lead to academic literacy in one or more languages. There are both similarities and differences between spoken and written language; in reading literacy, such differences are especially important. Reading ability requires exposure to written language. Academic literacy can of course develop in any language, but it needs a highly literate context to do so, and it also depends on an extensive terminology that has been standardised across content subjects. Urgent attention needs to be given to producing storybooks, information books and textbooks in the African languages in order for learners to develop academic literacy in these languages. It is only through repeated exposure to and experience with written language, extended texts and textbooks that learners develop reading proficiency and academic literacy in one or more languages. Furthermore, written language is conservative – it reflects a particular language (it is 'monolingual') that has become standardised over time and is used within the education context for advanced learning. When multilingual children in South Africa learn to read, they initially do so in a particular language in Grade 1. In 75% of schools, Grade 1s learn to read in an African language – which may or may not be their home language. In many cases, Grade 1 learners may speak a dialect that is not closely aligned with the standardised version of the written language. In whatever language they initially learn to read, both letter sound knowledge and decoding skills of that specific language are needed for reading comprehension. While very few language speakers may actually use the standard language in oral, everyday interactions, knowledge of the standard language is important for epistemic access to knowledge and meaning making in reading and writing.

There is still much scope for further research on language proficiency in one or more African languages, and on bilingual reading in general in South Africa. In Foundation Phase, teachers who provide language rich classrooms in which to develop all aspects of the specific language in which reading and writing is being taught (vocabulary, phonology, phonics, orthography, morphology, syntax and discourse conventions) are likely to produce better readers than classrooms where richness across languages is celebrated and richness within the specific reading language is neglected.

Vocabulary and reading: What do we know and what do we still need to know?

While the relationship between vocabulary and reading comprehension has been well established in reading research internationally, very little vocabulary research has been undertaken in African languages and this is a gap that waits to be addressed.

In her study involving Northern Sotho learners, Wilsenach (2015) found a strong association between vocabulary knowledge and reading in Northern Sotho; learners who performed more poorly on the Northern Sotho vocabulary task also performed poorly in the reading tasks. Several scholars have referred to the importance of morphology for vocabulary building across languages, and this is particularly so in African languages, as can be seen in words such as

ukubamba (to catch/hold on), *ukubambisa* (to let/help to catch/hold), *ukubambela* (to catch/hold for), *ukubambelela* (to hold on thoroughly), and *umbambi* (catcher). Recognising morphological similarities in words helps learners recognise phonological, semantic and syntactic patterns.

Research has also shown that being exposed to storybooks from an early age provides rich input for language, conceptual and vocabulary growth as well as knowledge about how different genres function in written language. How storybook reading in African languages affects both vocabulary and morphological growth is an area awaiting research.

Orthographic differences in learning to read: What do we know and what do we still need to know?

Reading research has shown that the specific orthography that young learners acquire can affect the ease with which they learn to read (Ziegler & Goswami 2005; Seymour et al. 2003). As discussed in Modules 1 and 3, when reading a language with a transparent and consistent orthography such as Finnish, Greek, Italian and African languages, decoding the text is easier (from a letter-sound relationship perspective) because the one-to-one relation between graphemes and phonemes is very high compared to a language such as English. However, there are also other factors that make reading in African languages more difficult, notably the agglutinating nature of the languages, word length and suprasegmental qualities. More research is needed to better understand how these factors play out in early reading development in the Nguni and Sotho related languages, as well as in Tshivenda and Xitsonga.

Nevertheless, decades of research have shown that teaching learners which letters represent which sounds, in other words teaching systematic phonics, is the most effective way to enable children to read words in alphabetic writing systems, irrespective of the transparency or lack of it in the orthography.

The role of morphology and orthographic mapping in learning to read: What do we know and what do we still need to know?

What is well established in research is the importance of phonological processing when reading in alphabetic writing systems. What is less well understood is the role of morphological awareness in early reading development. While research has shown that morphological awareness is associated with skilled reading, what is not yet clear is when and how morphological knowledge contributes to reading development. It stands to reason that in languages with rich and complicated morphology such as agglutinating languages (of which the African languages are prime examples), morphological knowledge is a critical component of language proficiency and of reading comprehension; it undoubtedly contributes to reading proficiency, but how it does so in both novice and skilled reading are details that remain to be examined in greater detail

Research from other agglutinating languages such as Finnish, Turkish and Basque with similarly complex morphologies consistently shows that letter-sound knowledge and phonological

processing remain critically important in early reading development, even in morphologically complex languages (Aro 2017; Miller, Guldenoglu & Kargin 2010). In Finnish, phonological processing remains a strong predictor of early reading ability, and continues even in Grade 4 (Aro 2017). Phonological processing thus remains an important skill in learning to read in alphabetic writing systems since the alphabet maps onto the sound system of a language. Once learners have mastered the alphabetic code, then morphological knowledge will undoubtedly play a role in word recognition, reading fluency and reading comprehension.

Given that morphology has an influence on phonology (especially the triggering of sound changes) in the African languages, it is important to examine more closely the relationship between phonological and morphological processing in learning to read, and the role that morphology plays in the transition between decoding, reading fluency and automaticity in reading.

Morphological awareness may play a particularly important role in **orthographic mapping**, a skill that sustains the rapid recognition of familiar words and the orthographic/morphological patterns that underlie the way that words are chunked morphologically. Researchers are still working out the details of how orthographic mapping happens, and there may even be differences in the way it happens, depending on factors such as transparency/opaqueness in the orthography, differences in learners' morphological knowledge, the role that reading aloud plays during the early stages of reading development, and the rapid word recognition processes that happen during reading comprehension and during silent reading.

Initially, a dual route theory of word reading was developed, based on English, which has many short, high-frequency words (Coltheart, Curtis, Atkins & Haller 1993). It was argued that because of its opaque orthography, some English words were acquired lexically (e.g., *are, once, though, yacht*), while more regular words were recognised phonologically. However, our understanding of brain mechanisms and processes has extended to other orthographies and become more sophisticated and detailed since this view was developed in the 1990s. Spencer (2019) points out that good readers across alphabetic writing systems show the same pattern of brain development:

- In the initial stages of reading, part of the visual area of the brain transforms and becomes specialised for processing letters and word spellings. This is the *visual word form area*. As the visual word form area develops and learners become more skilled at decoding, a pathway develops into the spoken language centres for analysing and producing the sounds of spoken words. This is the *phonic* or *phonological decoding pathway*. Words are first decoded via a phonological (letter-sound) route, using knowledge of how graphemes map onto speech sounds (phonemes).
- As the visual word form area and the phonic decoding pathway continue to develop, a second, interrelated pathway emerges that connects written words to their spoken pronunciations and meanings more directly. This is the *sight recognition pathway*, which builds on both small and larger chunks of letters. Learners start storing some words as recognisable letter strings in their long-term memory, e.g., *ngi-*, si-, *-bon-, wena*,

uthi, cha. The letter strings are instantly recognised, not as whole words but as a result of processing all the letters quickly in parallel (referred to as parallel processing). This enables word reading to happen more quickly.

It has become clear that in order to build reading fluency, children need to become aware of recurring letter patterns in their own language, based on orthographic, phonemic and morphological information. Noting recurring patterns involves incorporating both smaller and larger word portions until full word recognition is reached (Share 1995; Ehri 2005; Castles et al. 2018). After encountering a word several times, it becomes known and familiar to a reader, and he/she recognises word chunks and sequences that develop word- and sentence-related knowledge that speeds up and automatises the reading process. This is especially true in the case of the African languages because of their productive morphology and morphological agreement. Automatised reading, in turn, frees up attention for comprehension.

While morphological knowledge is important for fluency and reading comprehension, its role in early decoding is still not clear. Examination of the relationship between early reading and morphology in African languages awaits further research and can shed new light on the role of morphology as a mediating factor in phonological processing, orthographic mapping and the development of automaticity in alphabetic languages with transparent orthographies.

The role of motivation, attitude and emotions in learning to read: What do we know and what do we still need to know?

There is agreement that in reading, as in many other things we learn in life, positive role modelling is important in becoming a reader, as is motivation and enjoyment. While there is broad consensus on these issues, disputes remain over the smaller details within the broad agreement.

The debates about motivation and attitudes in reading essentially revolve around whether motivation and a positive attitude are seen as actual drivers of reading, or rather serve an important supporting role. Those who see these factors as a driver emphasise the love of books and reading, and argue that if children view books in a positive light and come to love reading, they are motivated to do more reading and, in the process, become better readers.

However, research results are mixed. Studies that assess both motivation and reading ability consistently show that weak decoding skill is detrimental to motivation in independent reading. Learners who have poor letter-sound knowledge struggle to blend words and do not properly understand how the phonics code works. They experience reading as exhausting and frustrating. They are thus less inclined to want to read and may not have a positive attitude to reading. If they are left to their own devices, they often avoid reading, thus having fewer opportunities to practise their reading, and may develop negative attitudes towards reading and books. This in turn creates challenges for school learning and managing their homework. Such findings suggest that decoding rather than motivation is a driver of early reading, and that motivation

plays a role once learners can actually decode.

Willingham (2017b) refers to the virtuous cycle of reading that incorporates the notion of self-concept and identity, where a learner learns to see him/herself as a reader. He argues that the more often children read, the better they read, the better they read the more they enjoy reading, the more they enjoy reading the more positive their attitude towards reading becomes, which prompts them to see themselves as readers, which compels them to read even more. The virtuous cycle is shown in Figure 12 below. However, as he points out, children are unlikely to want to read in the first place and start out on the virtuous cycle if they have not been given the alphabetic knowledge that enables them to recognise words, a skill that forms the basis of any reading journey and drives reading development in the early years.

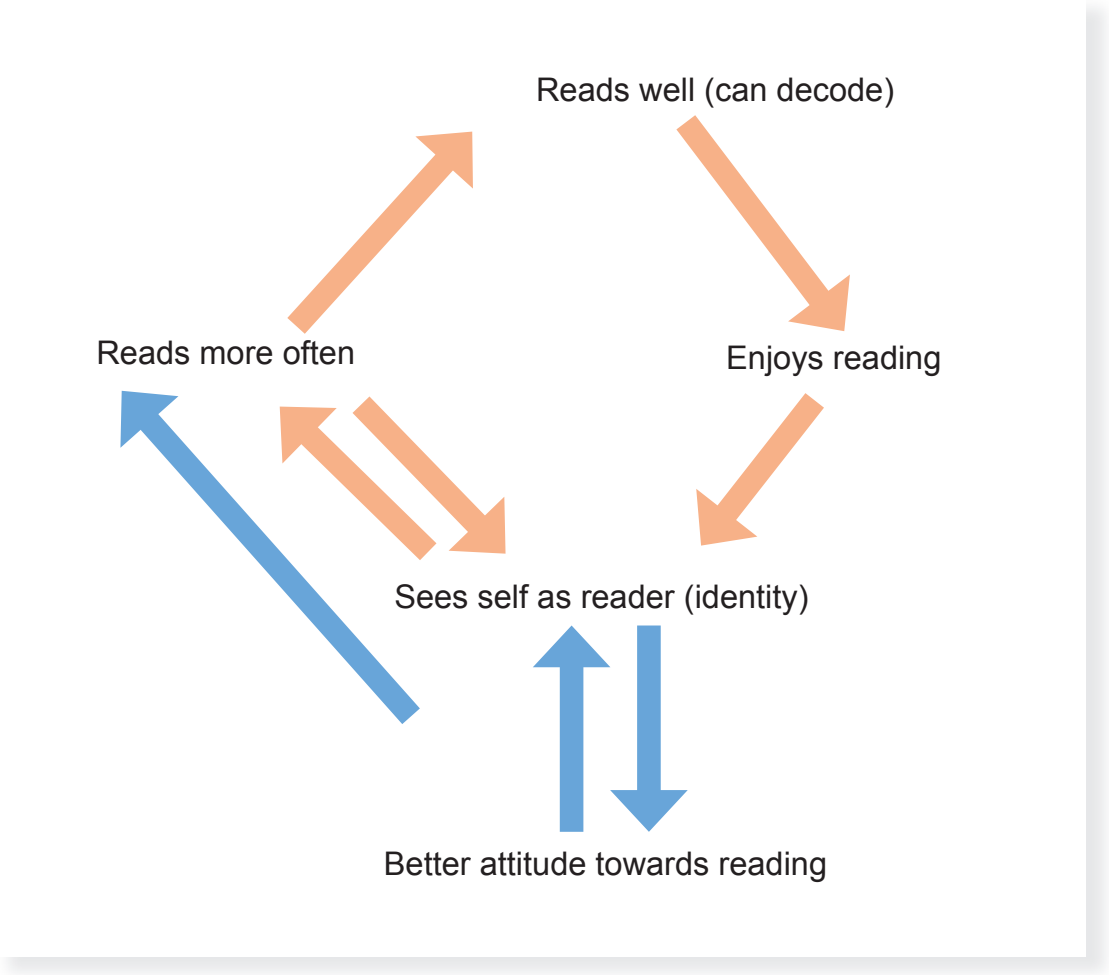

Figure 12: The virtuous cycle of reading with self-concept added (adapted from Willingham 2017b:146)

This accords with Stanovich's view (1986) that in reading the 'rich' get richer and the 'poor' get poorer, the so-called **Matthew effect** (taken from the gospel of Matthew 25:29). When children struggle to learn how to read, it can lead to a downward spiral in which behaviour, vocabulary, knowledge, and other cognitive skills are eventually affected by slow reading development. All over the world a disproportionate number of poor readers become high school dropouts and end up in the criminal justice system. The link between reading problems, failure to complete schooling and delinquency has been known for decades (Brunner 1993:1):

> *Research-based reading instruction could reduce recidivism[5] and increase employment opportunity for incarcerated juvenile offenders. Reviews of the research literature provide ample evidence of the link between academic failure, delinquency, and reading failure.*

While motivation and positive attitudes are undoubtedly important in any learning process, this does not absolve teachers from teaching foundational reading skills that enable learners to access text in the first place, build their self-confidence and provide a knowledge basis on which motivation and positive attitudes can be built and can thrive. Children who are not properly equipped with the knowhow to decode words and do not have a strong command of the language (orally), experience reading as a mystery, something they cannot master; hence they are unmotivated to read and their negativity towards reading grows.

Interesting new research from the field of social psychology focuses on the socialising effect that exposure to narrative fiction can have on children's expanding consciousness and social knowledge. Just as pilots learn to fly airplanes in a flight simulator, through storybook reading children come into contact with contexts and people who may be the same or different from them, with similar or different experiences and challenges. Research from various scholars (e.g., Mar, Oatley & Peterson 2009; Johnson 2012; Koopman & Hakemulder 2015) suggests that through fiction we become aware of the plight of others, we recognise that people can be different from us, but we also learn that people who are different from us are also like us, or that people who are like us can be different. This can trigger self-reflection and a more empathetic and tolerant approach to 'otherness', which in turn leads to a broadening of social and moral consciousness and prosocial behaviour. South Africa is a country that is divided by various historical, racial, political and economic factors. Regular exposure to local and international narrative fiction throughout schooling can reduce stereotyping and in-group thinking and help our children learn more about our different but shared social worlds, and foster a mindset that is open to reflection, empathy and prosocial behaviour.

It is clear that there is still continued scope for research in this domain, especially in understanding the relationship between socio-affective factors and language and literacy in multilingual, multicultural societies.

[5] 'Recidivism' is a legal term that refers to the tendency of a convicted criminal to relapse and repeat criminal behaviour after being released from jail.

External factors impacting on learning to read: What do we know and what do we still need to know?

External factors such as socioeconomic differences, home background, parental levels of education, access to quality schooling, resources in school, teacher training and content knowledge are all factors that have been shown worldwide to have an impact on the reading ability of learners, their subsequent progress in school and career options. There have been numerous South African studies in the past ten or more years that reflect these same trends and show how external factors can affect learning in general and reading in particular.

The child's home is the first factor that has an influence on a child's oral language proficiency and readiness to learn to read. The extent to which children are exposed to rich language usage at home, whether or not and how often they are exposed to books and have storybooks read to them, and whether or not parents/guardians/peers act as role models for reading, are all factors that influence children's attitudes to books and literacy. Various interventions to involve parents more closely in their children's early learning and literacy have been undertaken in South Africa, with various degrees of success. There are many challenges in this respect: many parents have low literacy levels and some feel that it is the school's responsibility to teach their children, many parents work long hours and are not always available to attend workshops or get involved during weekdays. Several ECD programmes such as *Wordworks* have been shown to be valuable in helping parents support their children's early language, literacy and numeracy development. Research is ongoing in this area and continues to provide new insights into the relationship between home and early reading and writing and home and school in a variety of contexts. Children's exposure to digital technology and its influence on learning to read is also a new area of research.

There have also been numerous studies worldwide and in South Africa that point to the strong relationship between socioeconomic factors and the development of reading skills (Spaull 2013; Howie et al. 2017; Mlachila & Moeletsi 2019). It is important to bear in mind that it is not poverty itself but rather the opportunities for learning (or lack thereof) associated with poverty that impact learning outcomes in general, and reading outcomes in particular. Children from poor homes are not linguistically or cognitively 'impaired' in any way. Instead, they often lack exposure to conditions that support learning (like good nutrition) or opportunities that promote learning (exposure to books, quality teaching, trips to new places like museums, a zoo or game reserve, etc). There are millions of people worldwide who came from poor homes and who, despite their background, did well for themselves, or despite poor schooling, became proficient readers, did well in school and went on to further education. Poverty is not destiny: if the barriers that poverty imposes can be overcome, this helps to 'level the playing field', and children from disadvantaged homes have the same chances as children from advantaged homes to learn to read successfully and perform well in school.

The development of strong decoding skills is strongly linked to later reading achievement in school. Developing strong decoding abilities in learners during Foundation Phase can serve as a

'social equaliser' in that it can be more influential than variables associated with socioeconomic disadvantage (Pretorius et al. 2022). It gives learners from low SE homes the chance to become good readers and to succeed academically despite other disadvantages in their home contexts.

Effective pedagogy

The school is an environmental factor that has a strong influence on learner reading performance, especially in the early stages of reading. Schools and teachers (and universities) cannot change the socioeconomic status of the learners or their parents. However, to a large extent they do have control over what happens in schools and classrooms, how teachers are trained, what they know about reading and how well they implement reading activities derived from research evidence. Good governance and leadership in schools can guide and support effective pedagogy.

Finland is an interesting case in point. In Finland, teachers are very well trained (the minimum teaching qualification is a master's degree in Education), systematic phonics is taught in all early grade classrooms in the same way, children are taught to high levels of mastery and struggling readers are identified early and remediated (Aro 2017). The same practices apply across schools, irrespective of whether they serve poor or more affluent communities. Finland is a regular participant in PIRLS and has consistently been among the top performing countries in reading comprehension. Furthermore, it is one of the countries that also shows very little disparity in reading performance based on socioeconomic factors. Children from poor areas have as good a chance of becoming proficient readers in their schools as children from affluent areas. This is obviously an aspirational goal for all education systems, but not one that is easily or quickly achieved.

The important role of effective pedagogy and functional schools in early literacy development is the reason that many of the global education reform initiatives focus on school governance and leadership, classroom practices, teacher training and professional development, and book resources and their management. South African is not alone in facing many education challenges. There have been numerous research studies in LMIC that reveal large disparities in learning within the same classrooms and that show that many teachers are poorly trained and have low content subject and pedagogical knowledge. Teachers are also the ones who daily deal with the effects of poverty and hunger on children's attention and capacity to learn.

The low literacy outcomes of South African learners point to ineffective pedagogy in classrooms. Research on classroom practices has shown that many teachers, particularly in low-income schools, rely on the repetition of whole-class chorusing of syllables, words or sentences. Phonics instruction is poorly done, no reading homework is given, children are seldom given opportunities to read extended texts, teaching is slow paced and at a low cognitive level that seldom involves reasoned thinking, and teachers seldom provide corrective feedback (Muller & Hoadley 2019; Hoadley & Boyd 2022).

There are numerous studies in South Africa that point to similar challenges, such as wasted

teaching time, poor coverage of the curriculum, ineffective communalised pedagogy (Carnoy et al. 2015; Hoadley & Boyd 2022); poor school governance and leadership (Wills 2019); low levels of teacher content and pedagogic knowledge (Taylor & Taylor 2013; Ramadiro & Porteus 2017). In addition, there are also resource factors that impact the teaching and acquisition of reading, such as insufficient availability of reading material in African languages, especially information texts (Katz & Rees 2022); dissimilarities between the content of many texts and learners' own cultural backgrounds (Janks 2011; Prinsloo & Krause 2018), etc. These are all important areas of concern that require further research from various perspectives to inform our understanding of early reading instruction and development, and how classroom practice can be improved to get learners off to a better start on their literacy journeys, especially in schools that serve poor communities.

Given how important it is for education systems across the world to get their learners launched on a successful reading trajectory at the start of schooling, it is early grade teachers in particular who need support in understanding how best to teach reading (and numeracy) within their specific urban or rural schooling realities, using evidence-based practices. Global education research consistently shows that the most effective ingredients in bringing about quality outcomes in reading and learning include structured learning programmes, systematic phonics instruction, skill-based learning (e.g. developing strong decoding skills), teaching at the right level and teacher professional development that provides teachers with relevant content and pedagogic knowledge and professional training (Moore et al. 2017; Evans & Acosta 2020; Nakamura et al. 2023).

Theories about reading and its development, or opinions about low reading performance need to take account of the empirical regularities that have emerged, both from local reading research in African languages and from converging evidence internationally over several decades about reading in alphabetic orthographies. This large body of evidence is by no means definitive, straightforward or complete. Nevertheless, it has shed much light on the important relationships between alphabetic knowledge, decoding, reading fluency and reading comprehension and how these relationships change over time as reading fluency and automaticity develop. This is because learners all over the world have similar brains. The ways in which alphabetic knowledge and decoding skills develop in the visual system and form neural links to language centres of the brain show remarkably similar patterns across alphabetic writing systems. No doubt future research (and new technologies) will throw more light on the details, and the ways in which individual learners and language specific orthographies may differ within these general structures and patterns.

A school and teachers who emphasise and value language and literacy will motivate children to learn to read and write. The school is in most cases the place where children are exposed to formal teaching of reading. It is essential that the most effective methods must be used to teach children to read to high levels of mastery and enjoyment. Classrooms should also be places where children are continuously exposed to activities that promote reading, language, vocabulary and cognitive and socio-affective development.

Conclusion

While everybody agrees that reading is an important ability for schooling, academic success and life in general and that early reading instruction is thus important, not everyone agrees on how reading is best taught. Given the increasing insistence in the modern world for pedagogy to be driven by 'evidence-based practice' rather than by political or personal motives, this module proposes a framework for adjudicating competing views within a scientific research tradition in order to better understand what is meant by 'evidence-based practice'. This module discusses two main types of approaches to early reading instruction, namely a meaning-based approach (Whole Language) and a code-for-meaning approach (Phonics approach). The main assumptions and arguments in each approach are described, and arguments for or against the approaches set out.

This module has argued that there is a preponderance of evidence from forty years of scientific research into reading in alphabetic writing systems that teaching children how the code works in their particular orthography gets them off to a good start on their literacy journey. A phonics-based approach to reading instruction does not mean that only phonics is important in reading but rather that learners have a better chance of becoming skilled comprehending readers if they have a good phonics foundation. Likewise, there is a preponderance of evidence from research in global education reform initiatives that skill-based learning and teacher professional development are effective ingredients for quality outcomes in LMIC.

Despite the differences in languages and context, these findings are also relevant to the South African context and align to a large extent with local research findings. Given the complexity of reading and the rich data that is now available about language and reading in South African languages, this unit reviews some of the main empirical findings about early reading development for our context and where its strengths and weaknesses lie. While all aspects of reading still require ongoing further research, especially in the South African context, it is argued that attention should be given to the preponderance of research findings that point to the poor language, alphabetic, decoding and reading fluency skills of our Foundation Phase readers. Literacy outcomes across our schooling system are unlikely to improve unless attention is given to improving these foundational skills.

Teacher professional development is unlikely to be effective if higher education institutions that train teachers do not keep abreast with global and local education research findings but cling to outdated views of reading where decoding skills are regarded as unimportant. Attention must also urgently be given to developing more narrative and information resources in African languages, and promoting rich language, vocabulary and background knowledge in our classrooms. Foundation Phase teachers have an extremely important role to play in developing the language and literacy skills of future generations of children, irrespective of their home and socioeconomic backgrounds. Getting these children off to a good start in reading puts them on a pathway that can lead to personal, academic and economic fulfilment.

Self-assessment activities

These are 'quickie' assessment activities to check how well you have understood key concepts discussed in this unit and whether you are able to perceive the pedagogical implications of such concepts in the teaching of reading.

Note: The key to these self-assessment activities is given in the Appendix at the end of this module. If you score less than 6/8 (75%) for these questions you are advised to re-read the unit again to strengthen your content and pedagogic knowledge.

1. In each of the statements below provide **the appropriate missing word (or words)**. (5)

   a) For many years South Africa lacked large-scale data on early language and reading skills that support reading comprehension, especially in African languages. Assessing early language skills can include a test of _____ comprehension, while a test of oral reading fluency assesses _____and speed of reading. (2)

   b) In PIRLS, the _____ at 400-475 points refers to learners who have 'basic' reading comprehension skills. These are children who have some understanding of the 'surface' aspects of a text. (1)

   c) When the same learners are assessed on a range of foundational reading tests at different points in time this provides researchers with _____ data that enables them to see how different reading skills develop over time. (1)

   d) One of the most fundamental generic principles of reading in alphabetic writing systems is that spoken language is represented by letters at the _____ level. (1)

2. Indicate which one of the following statements is **false**. (1)

   a) When more than half of South African learners do not know the letters of the alphabet by the end of Grade 1, then it is clear that Grade 1s are not being exposed to good phonics instruction.

   b) Most primary grade learners who struggle to read, struggle because they lack strong decoding skills.

   c) Phonics instruction is important for learning to read in all alphabetic languages, which means that it should be taught throughout the primary school curriculum.

   d) Oral multilingualism in and of itself does not automatically foster reading ability in one or more languages.

3. Indicate which of the following statements is the **correct** one. (1)

   a) Because African languages are morphologically complex, it is unlikely that phonological processing will play a role in early reading acquisition in agglutinating languages with an alphabetic writing system.

   b) Children who have strong decoding skills but poor vocabulary knowledge are likely to struggle with reading comprehension.

   c) If children develop a love of storybook reading then this will naturally lead them to acquire decoding skills.

   d) Although findings from recent large-scale studies in South Africa consistently show that most learners leave Foundation Phase with poorly developed foundational reading skills, struggling readers usually catch up later in primary school.

4. Consider the following scenario and then select only **the option** which is likely to be **an inaccurate reflection** of this scenario. (1)

   A group of Foundation Phase student teachers in their final year of BEd studies have formed a study group. They get together regularly to share their class notes and to discuss what they have been learning about reading from their lectures, their textbooks, articles from the Internet and what they learned from their practical teaching experiences about reading. They have lively discussions about reading, they are passionate about becoming good Foundation Phase teachers and would even like to pursue postgraduate studies in the future. They have recently attended a series of lectures on research on reading across South African languages (based on Unit 4 of this module!) and are interested in finding out more about different aspects of reading in African languages. Student N said that the South African research data on the relationship between alphabetic knowledge and later reading ability in primary school weas a a real eye opener for her as she used to think that learners would be able to catch up as they progressed through primary school. Student R agreed and said that in the next PIRLS cycle, he would like to track Grade 4 learners who do PIRLS in isiZulu and assess their letter sound knowledge to see how it relates to their performance in isiZulu reading comprehension in PIRLS. Student D is interested in the virtuous cycle of reading and would like to see whether learners' oral reading fluency influences how often they read outside of school hours. Students V and G find the topic of vocabulary development fascinating and they would like to develop a vocabulary test of high- and mid-frequency words in Sesotho for Grade 3 Sesotho learners: "We want to use it to test learners at the beginning and then again at the end of Grade 3."

a) From the above scenario it seems that the data that Student N found to be an 'eye opener' is that displayed in Figure 12 of this unit.

b) From the above scenario it seems that Student R wants to test whether there is a relationship between phonics knowledge and reading comprehension in isiZulu.

c) From the above scenario it seems that Student D will use ORF as a measure of how well learners read, as reflected in Figure 12, to see whether it affects learners' voluntary reading.

d) From the above scenario it seems that the reason why Students V and G want to include mid-frequency words in their proposed vocabulary test is to see how vocabulary development in Sesotho advances beyond common, everyday words during the course of a year.

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Appendix

Key to self-assessment activities

The correct responses to the self-assessment exercises are indicated below.

NB: If you score less than 6/8 (75%) for these questions you are advised to re-read the unit again to strengthen your content and pedagogic knowledge.

Key for Unit 1

1a … **componential** approach
1b … **converging** evidence
1c … **holistic** approach
1d …**replication**
1e … **conditionality**/the **conditional** principle
2c
3b
4c

Key for Unit 2

1a **letters** and the **sounds** that they represent.
1b **decoding/phonics**
1c **recognising/decoding** the words
1d **accuracy**
2a
3d
4d

Key for Unit 3

1a … **synthetic** phonics approach also referred to as **structured** phonics …
1b … **frequency** of occurrence
1c … **letter sounds**
1d … **blending**
2c
3a
4c

Key for Unit 4

1a **listening** comprehension **accuracy** and speed of reading
1b the **Low International Benchmark**
1c longitudinal data
1d **phonemic/phonological** level.
2c
3b
4a

Examples of summative questions requiring longer, more detailed responses

The questions given here serve as *examples* of summative assessment questions that are typically given in formal written examinations or assignments.

These are longer essay type questions that require students to demonstrate their content knowledge of reading and its application to classroom instruction in ways that are **clear** and **systematically** presented.

The mark allocation for questions provides a *rough* guide of how long your answer needs to be in relation to the total marks allocated to the examination paper. A question of 10 marks would require at least 1-1½ pages, while a 20-mark question requires a more detailed and extensive exposition of about 2-3 pages. When in doubt, rather write more than less. Remember, your response to a question is a display of your knowledge, so short answers suggest superficial and inadequate knowledge.

A rubric has been provided at the end to give you an idea of the different aspects of an essay that are taken into consideration when allocating marks, e.g. planning and logic; content, argumentation and examples; use of sources; language usage and technical finishing.

Note: When questions require examples to be provided, it is important for students to give their own, original examples and not simply copy examples from the module. Examples demonstrate whether students understand the content. Students who copy examples from the module will not be given credit for them; only original examples will be accepted.

Question 1

a. The Whole Language approach to teaching reading is a holistic approach that emphasises meaning above everything else. Describe and discuss two Whole Language claims about reading that are not supported by scientific evidence, and point out what implications this has for early reading instruction. (10)

b. The principles underlying scientific research serve as quality control mechanisms in ensuring quality research and helping to adjudicate contrasting theoretical claims. (i) Explain what replicability and converging evidence refer to in scientific research. (ii) Give two examples from early reading development that show how the application of these principles have advanced our understanding of early reading development in alphabetic writing systems. (10)

c. Explain how data from eye tracking research has helped to adjudicate contrasting claims about the role of accuracy and precision in reading. (5)

(25)

Question 2

a. Briefly explain what the Three Cueing method entails for identifying words while reading. Identify the flaws and misconceptions related to this method of identifying words that a young reader has not yet encountered. (10)

b. Briefly outline the so-called 'Balanced Literacy approach' that emerged after the National Reading Panel report of 2000. Explain why this approach is not as balanced as its name suggests. (8)

c. Reflect on the reasons why the Whole Language and Whole Word approaches to teaching reading are even more unsuitable for reading instruction in African languages compared to English. (7)

(25)

Question 3

a. Even though there are different phonics approaches to teaching reading, the synthetic phonics approach is the one that consistently yields good results. Based on what you learned about the characteristics of a good phonics programme in Module 3 and in this module, explain why this particular approach to teaching reading in the early years tends to promote skilled reading across a range of learners and languages. (13)

b. Identify and describe at least six things that teachers must guard against or avoid when teaching phonics, to maximise its relevance to early reading success. (12)

(25)

Question 4

a. Briefly discuss the impact that neuroscience research has had on the teaching of reading. Focus in particular on how neuroscience has resolved certain misconceptions about learning to read. (10)

b. Explain why it is important to have benchmarks for reading in the individual African languages and how these benchmarks can be used to monitor and assess the reading development of beginner readers. (8)

c. Briefly discuss the role of morphological awareness on reading in alphabetic writing systems in general. Based on your own bilingual experience of reading in an African language and in English, explain what you think research in the South African context should focus on in order to better understand the role of morphological knowledge in reading across different languages. (7)

Question 5

Learning to read is a complex and challenging undertaking and it takes many years to become a skilled reader. A multitude of factors influence reading skill and the ability to read with comprehension. The way teachers are trained to teach reading can have a direct effect on how effectively they teach reading in the classroom. Explain why it is important for teacher training institutions to keep abreast with developments in the field of reading research, to make teacher trainees aware of the principles underlying scientific research, and how research findings can inform classroom teaching. Provide examples where possible to illustrate your point or to support your arguments. (25)

Portfolio Assignment: Module 7

Teachers find it challenging to develop an effective pedagogy for teaching reading, partly because reading has so many components that must be developed more or less at the same time. Write an assignment indicating how you would teach early reading to Grade 1 learners in Term 1 who come from largely disadvantaged home backgrounds. Give an account of how you would introduce the children to the world of written language and storybooks, how you would teach the first the first ten letter sounds in isiZulu/Sesotho, and how you would extend their vocabulary in isiZulu/Sesotho during Term 1. In each case, specify clearly what you want them to learn, how your teaching activities and resources will support the learning, and how you will determine whether they are achieving the desired learning outcomes. (100)

Rubric for essay type assignments

The rubric below can be used to mark the summative assignment. The mark allocations show how different aspects of the essay may be evaluated. The mark allocations can be adjusted proportionately to the total mark of an assignment.

CRITERIA	Below expectation	Progressing towards expectation	Meets expectation	Exceeds expectation	Score
Planning and logic of exposition	The work lacks proper planning; no problem statement/aim/purpose statement; no logic exposition. Findings reported unsystematically. No conclusion/ recommendations.	Planning mostly lacking; exposition difficult to follow; findings could be reported more clearly. Headings and subheadings reflect some organisation.	Provides a satisfactory exposition and discusses the topic logically and clearly. However, there are areas that need improvement. Not all facets of the topic have necessarily been adequately addressed.	The exposition of the assignment is excellent; the argumentation is logic and absolutely clear; the reader has no problem following the discussion.	
Maximum 20	1-5	6-11	12-17	18-20	
Content, argumentation and examples	The content is poor. The arguments do not build up systematically. Examples are inappropriate.	Parts of the content is relevant. There are instances of staccato-like argumentation. Some examples illustrate the principles well while others don't.	The content is relevant and well structured. The argumentation is systematic. The examples are appropriate for the purpose they have been used.	The content is excellent. The examples have been integrated excellently in the text to strengthen the argumentation.	
Maximum 30	1-9	10-17	18-25	26-30	

Information gathering and use of sources **Maximum 20**	No sources used, or seminal sources not consulted. Sources misinterpreted. Improper recognition of sources. 1-5	Some authoritative sources have been used; there are errors in the recording of sources; in some instances recognition has not been given to sources. 6-11	Consulted sources have been duly listed. The most important sources have been consulted. The sources have been interpreted correctly. There are a few errors in terms of information gathering though. 12-17	Authoritative sources have been consulted; all consulted sources have been listed correctly. The referencing is correct, and sources have not been misinterpreted or mispresented. 18-20	
Language usage **Maximum 15**	The formulation is clumsy and there are many grammatical and/or spelling errors in the text. Sentences often make no sense. 1-3	The formulation is fair but there are instances of poor sentence structure/ grammar/ spelling errors. 4-8	The language usage is very good. There are no instances of poor formulation or grammatical errors; there may be a few spelling errors.. 9-13	The academic language usage is excellent. There are no instances of poor formulation or grammatical or spelling errors. 14-15	
Technical finishing **Maximum 15**	The formatting is poor. The assignment lacks headings; it lacks cohesion; there may be repetitions; punctuation is also wrong in places. 1-3	The formatting is not always good; the headings may be inappropriate or confusing; there are instances of poor punctuation. 4-8	The formatting is very good; headings are appropriately used. There is cohesion and coherence in the text. Punctuation is good. 9-13	The formatting is excellent; headings and subheadings are immaculate; cohesion and coherence are excellent. Punctuation is exceptional. 14-15	
Notes to student:					