

*The Identification of Assessment Resources to
Support Children Learning to Read in the Early
Years of School*

Report for the Department of Education WA

Dr Caroline Barratt-Pugh & Dr Grace Oakley

Edith Cowan University, Perth

Faculty: *Education & Arts*

School: *Education*

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2. Terms of Reference

- a. Examination of evidence based research related to the development and assessment of children's reading development.
- b. Development of criteria to identify an effective tool or a battery of tools for assessing early reading skills.
- c. Documentation of resources under development or in use by schools, district and central offices and other jurisdictions.
- d. Use of criteria to identify an assessment resource or battery of resources to assess children's reading development in the early years of schooling.
- e. Identification of resources to support the sequenced teaching of phonological awareness and phonics.

3. Purposes and Aims

This report documents a four-month project that, through a review of the literature, considered research evidence relevant to the effective assessment of early reading, with a particular emphasis on phonological awareness and phonics, and the implications for practice. The project also gathered information about reading assessments in use in the Western Australian early childhood context.

Throughout the project, collaboration with other suppliers/consultants engaged to fulfil similar contracts in relation to *Oral Language Development* and *Social and Emotional Development* has taken place.

3.1. This report will focus on the following items:

- The research evidence relating to the support and assessment of young children's (4-8 years) reading development, taking into account children in different cohort groups, including Aboriginal children and children from culturally and linguistically diverse backgrounds (CALD). The development of criteria for identifying effective assessment tools for use in early childhood education classrooms.
- The scoping of resources and procedures in use or under development to assess children's reading in the early years of school in: Schools, Department of Education and Training, District Education Offices and the Department of Education and Training's Central Office, and other jurisdictions.
- The identification of an assessment resource or battery of resources to assess children's reading development in the early years of schooling, using the criteria developed. The identification of resource/s takes into account teacher workload and time and cost restraints that impact on the sustainable implementation of assessment at classroom level.
- Identification of resources to support the sequenced teaching of phonological awareness and phonics.

3.2. This report will not:

- Identify and describe *every* measure or resource for young children's reading development that has been developed or is being used in Western Australia. It is beyond the scope of this project to do so.

4. Literature Review

The following sections summarise the main findings from the literature review relating to the assessment of literacy and, more specifically, reading. The full literature review identifies, discusses and critiques each aspect in greater depth.

4.1. Search strategy

The literature review was carried out using a number of academic books on literacy assessment and electronic databases:

- ERIC

- Eric & Ed Docs
- WilsonWeb
- Proquest
- Proquest 5000 International
- Proquest Ed Journals
- Psych Articles

Apart from the investigation of organisational websites, such as The International Reading Association, the following websites were investigated:

- Australia State Education Departments
- New Zealand Education Department
- UK Department for Education and Skills
- American and Canadian State or provincial Education

The search strategy aimed to identify assessment procedures and resources relating to reading development in the early childhood years. Search terms included: early literacy, literacy, reading, phonics, phonological awareness, attitude, comprehension, fluency, concepts about print, word identification, motivation, letter names, and vocabulary. All of the above were searched with reference to the following terms: assessment, evaluation, tests, measures, programmes and tools.

4.2. Summary of literature review

4.2.1. Literature review: Introduction

Overall, the literature suggests that assessment is an essential and critical component of early childhood education. This is summed up by The Early Childhood Australia position statement for Language and Literacy, which asserts that assessment and monitoring of children's progress should be an integral, ongoing part of the teaching / learning process (ECA, 2007). However, in relation to early literacy, there is some debate about the *purpose* of assessment, *when* it should be carried out and the most effective *types* of literacy assessment tools in the early years.

Teaching Reading, the report of the National Inquiry into the Teaching of Literacy (NITL) (2006) and the Western Australian Literacy and Numeracy Review (WALNR,

2006) both recommend that early childhood teaching programs should be informed by comprehensive, accurate and appropriate assessments. Early assessment is seen as a means of identifying the skills and understandings that young children have attained or are developing in pre-primary and school. Data from these assessments serve as an indication of what needs to be taught, through engaging children in a range of activities that develop early literacy skills. It is important that all children are given the opportunity to demonstrate what they can do and understand so that teachers can use this data to plan appropriate and effective literacy programs.

In addition, there is a growing concern about children who appear to struggle with school literacy and experience little success. While it is agreed, that it is imperative to identify those children who appear to be ‘at risk’, there is little consensus about the best way to do this. On the one hand, ‘on-entry’ assessment is seen as a means of identifying reading difficulties and providing appropriate intervention for children deemed to be ‘at risk’, particularly as research suggests that children who struggle with literacy during the early years of schooling find it increasingly difficult to ‘catch up’ with their peers (Juel, 1988; Torgeson, 1998). However, the question of how early to assess and intervene continues to be the subject of debate. It is argued that, if children come to school with few ‘school-like’ literacy experiences, it would be premature to conclude that they are experiencing difficulty in learning to read, although they may be deemed ‘at risk’ if not provided with appropriate teaching / learning experiences. Most children develop a range of literacy knowledge and skills during their first year at school. Therefore, it is argued that it would be more productive to enable children to participate in an effective literacy environment in their first term of school (pre primary or Year 1) before assessing them to identify possible intervention needs (Johnston & Rogers, 2003; Clay, 2002).

On the other hand, research suggests that using a range of informal methods, based on activities which are integrated into engaging daily activities for small groups or individuals, can also be used to determine children’s level of development of key literacy understandings for school success (McGee, 2007). For more information about these approaches see Center’s (2005) *Beginning reading* and Gunning’s (2006) *Closing the literacy gap*.

Ultimately, decisions about when and what to assess should be based on teacher knowledge about the skills and understanding of literacy that children bring to school, the teaching program, context of learning and an awareness of the diversity of cultural and linguistic backgrounds.

4.2.2. Principles of assessment in Early Childhood

Definition of assessment

There is a proliferation of definitions of assessment in the literature, with various levels of agreement about what constitutes assessment. Assessment in this document refers to all forms of measurement and appraisal that are recorded and integrated in an organised manner, for the purpose of gathering authentic, regular, detailed and objective information about a child's accomplishments (MacAfee & Leong, 2002). Thinking of assessment as a process acknowledges that data collection, analysis and evaluation is ongoing and cumulative, and is undertaken to inform teaching programs.

The literature suggests that a group of assessments used to comprehensively measure a particular domain may be referred to as an assessment 'system' (Snow, 2002). The literature also notes that at times there is sometimes confusion between 'assessment', 'evaluation' and 'reporting', with the three terms often being used interchangeably (Cobb, 2003). However, assessment relates to collection of data or evidence about a child's learning, evaluation refers to analysis and making judgements about the child's learning using the data collected, and reporting refers to recording the assessment and/or evaluation information (Annandale., Bindon., Handley., Johnston., Lockett & Lynch 2003).

General issues in assessing young children

The literature has highlighted a number of factors, which need to be considered in relation to the assessment of young children. Research suggests that the younger the child, the more difficult it is to be confident about assessment results (Salinger, 2006). A comprehensive assessment system requires ongoing, cumulative assessment using multiple data sources from multiple viewpoints and contexts. A single 'snapshot' assessment is inadequate, especially in the early years when growth can be rapid,

episodic, and children's level of competence vary according to the context and the task.

Research suggests that effective assessment must take into account the knowledge and skills that children have developed prior to school entry. This is particularly important for children from diverse linguistic and cultural backgrounds, whose cultural knowledge, values and practices may differ significantly from school based ways of learning.

Culturally and linguistically diverse children and early assessment

There is overwhelming evidence that children's home languages have a continuing and significant role in identity, social and emotional competence, learning and the development of English (Au, 2000; Makin, Campbell & Diaz 1995). Given that home language skills are transferable and strengthen understanding of language use, the literature suggests that children should be encouraged to continue to build a strong foundation in their home language. This has important implications for assessment, where recognition of competence in home languages forms part of the overall picture of children's level of understanding and skills. This includes gathering information about both speaking and listening as well as reading and writing in home language(s) and giving children opportunities to demonstrate their competence in home language(s). Parents, children and translators can help to interpret this information to complement data collected in English.

Choosing appropriate assessments for culturally and linguistically diverse children is complicated by the fact that they are by no means a homogenous group of children. The context of assessment, the time involved in learning English and the differences between home language and English should be taken into account when assessing children for whom English is an additional language or dialect. Furthermore, just as a teacher's orientation towards reading theory will influence their use of reading assessments generally, their views and understandings about how linguistically diverse children learn English will influence their assessment choices. In addition, it is important to consider cultural bias within tests and the extent to which existing norms and benchmarks take minority students into account.

Indigenous children

Although there have been some improvements in recent years, there remains a disparity in literacy achievement between the indigenous population and non-indigenous population the 'mainstream', as measured by year 3, 5 and 7 benchmark assessments such as the Western Australian Literacy and Numeracy Assessment (WALNA). Results are typically about 20 percent below the national average (MCEETYA, 2006).

In order to effectively teach reading to indigenous children, it is recommended that teachers understand indigenous culture(s) and that they explicitly teach English in the context of pedagogically appropriate approaches (MCEETYA, 2006). It has been pointed out that there does seem to have been some progress in the teaching of Aboriginal children through the use of culturally appropriate pedagogies, but the impact of this is not always demonstrated because inappropriate assessment types continue to be used. The literature indicates that informal assessments are generally the most appropriate (fair and valid) means of assessing children from cultural and linguistic minorities, including Aboriginal children.

Children with learning difficulties and gifted children

In order to fairly assess children who have learning difficulties, it is often necessary to modify or accommodate assessments. Children with difficulties need to be assessed more often, using progress monitoring assessments, which will often be of an informal nature. More diagnostic assessments will also be used, some of which will be administered by educational psychologists and support staff. However, classroom teachers and parents/carers should be as fully involved in the diagnostic process as possible, so that their 'fine grained' knowledge of the children in their class and at home can be enhanced, as they work in partnership.

Gifted children are inadequately covered in the literature on literacy assessment, although general principles of teaching and assessing gifted children should help teachers make assessment decisions.

The use of informal tests in early childhood

Informal assessments have informed early childhood education for many years. These carefully constructed, contextually based and culturally sensitive types of assessments are often regarded as more 'authentic' than standardised and/or commercial assessments (Abadiano & Turner, 2003; Buhagiar, 2007). They rely on skilful, knowledgeable teacher construction and interpretation through focussed observation and the analysis of children's work samples and work processes. These assessments include play and enquiry based interactions in which the children are given opportunities to demonstrate what they can do and understand. The validity of this type of professional judgements can be augmented by regular group discussions and individual reflections (Puckett, 2000).

As with all effective assessment, informal assessment may be supplemented, when necessary, with other more formal assessments, particularly when there is concern about a particular aspect of a child's literacy learning. This 'triangulation' helps to moderate initial findings and ensures as higher a degree of veracity.

The use of formal tests in early childhood

Formal tests have been identified as a useful way of screening, diagnosing and monitoring children's progress. However, it is important to document some of the general concerns about the effects of formal tests on students, especially on young children. As outlined by Linn and Miller (2005), one of the main criticisms is that tests and formal testing environments, can cause anxiety, affecting performance and thus the validity of the test results.

A second criticism of tests and, indeed, any assessment types involves the fact that children can be categorised and labelled (Linn & Miller, 2005). This can influence the ways in which students are perceived and the ways in which they perceive themselves, influencing future performance. In the case of very young children, it is particularly easy to incorrectly label children, since accurate assessment is complex and difficult (Linn & Miller, 2005).

The Association for Childhood Education International position paper (Solley, 2007) lists the following potential disadvantages of formal assessments in early childhood contexts. The use of formal assessment may:

- result in increased pressure on children, setting too many of them up for failure and, consequently, lowered self-esteem;
- not provide useful information about individual children, yet often becomes the basis for decisions about children's entry into kindergarten, promotion and retention in the grades, and placement in special classes;
- lead to harmful tracking and labelling of children;
- encourage teachers to spend time preparing children to take the tests, undermining their efforts to provide a program responsive to children's interests and needs;
- limit educational possibilities for children, in distortion of curriculum, teaching and learning, as well as lowered expectations;
- fails to set the conditions for cooperative learning and problem-solving.

Finally, and perhaps most significantly, Fleet and Torr (2007, p.197) argue that 'providing equality of opportunity, is not the same as measuring all children with the same tests; telling children they are failing when compared against others will not improve their opportunities'. If it is accepted that literacy is a complex process, which involves many different aspects of development, then perhaps formal tests can be seen as providing specific, but limited information which needs to be augmented with informal assessments.

4.2.3. What is early literacy?

There are numerous definitions of literacy, most recent perspectives include speaking and listening, reading, writing and viewing, as well as critiquing texts as part of literacy (Curriculum Council, 1998; Hill, 2007; NITL, 2006). In addition, the advent of information technology has led to the concept of multiliteracies, which include

electronic literacies, technoliteracies, digital literacies and visual literacies, as well as ‘traditional’ print based literacies (Hill, 2007). Thus, becoming literate in today’s society requires the knowledge and skills needed to read and write and use spoken and written language as well as sounds and visual images.

Educators’ understandings about the nature of literacy learning have also changed and more recent perspectives suggest that literacy is a social phenomenon, influenced by social and cultural factors as well as cognitive abilities. Literacy learning involves knowledge about different forms, functions and meanings of text, as well an understanding of the way in which sounds are symbolically represented (phonics). The development of all these aspects of literacy is influenced by the child’s engagement in different types of practices, which, in turn, impact on motivation and attitude towards learning literacy. Thus, literacy learning cannot be viewed as a pre-programmed universal sequence of development; rather, development is shaped by the interface between sociocultural experience, cognitive abilities and learning styles (Fleer & Raban 2007; Freebody & Ludwig 1995). The teacher’s view of literacy will clearly influence what is seen as important and therefore what is assessed.

This sociocultural view of literacy suggests that when children enter formal schooling, they already have some knowledge about and experience of literacy practices. The National Inquiry into the Teaching of Literacy report, *Teaching Reading*, (2005, p. 15) recognises that literacy begins before formal schooling and that parents can give children the ‘best start’ to their literacy development. The West Australian Curriculum Framework (1998) also acknowledges the importance of valuing and building on the competencies and understandings that children bring to school.

This view of literacy has important implications for assessment, particularly in relation to ‘on entry’ testing. Research suggests that for children who have experience of ‘school like’ literacy practices, there is a high degree of continuity between home and school. Where the literacy practices between home and school are less congruent, however, some children may face initial difficulties in responding to the demands of a school based early literacy curriculum (Hill., Comber., Loudon., Rivalland & Reid 1998; Makin & Jones Diaz 2002). Appropriate assessment procedures are necessary

in order to discover what the child brings from home, yet what is ‘appropriate’ will vary, according to the children’s social, linguistic and cultural backgrounds.

A sociocultural view of literacy suggests that one of the most powerful ways of assessing children is through observation of children in a range of literacy based activities. This enables teachers to collect authentic information to inform future planning as well as providing data for mandatory record keeping (Fleet & Torr, 2007). More formal assessments used sensitively can compliment this information.

4.2.4. What is important in the development of reading in Early Childhood?

While recognising that the modes of literacy are interrelated and mutually supportive, the following sections of the report focus on the development of reading. Reading can be viewed as a problem solving process, in which children use a range of strategies and information sources to gain access to the meaning of the text. This process involves the interplay between contextual factors, motivational influences and cognitive abilities. The following model (Figure 1) from Bell and McCallum (2007) outlines each aspect of the process of reading, and how the aspects might be interrelated.

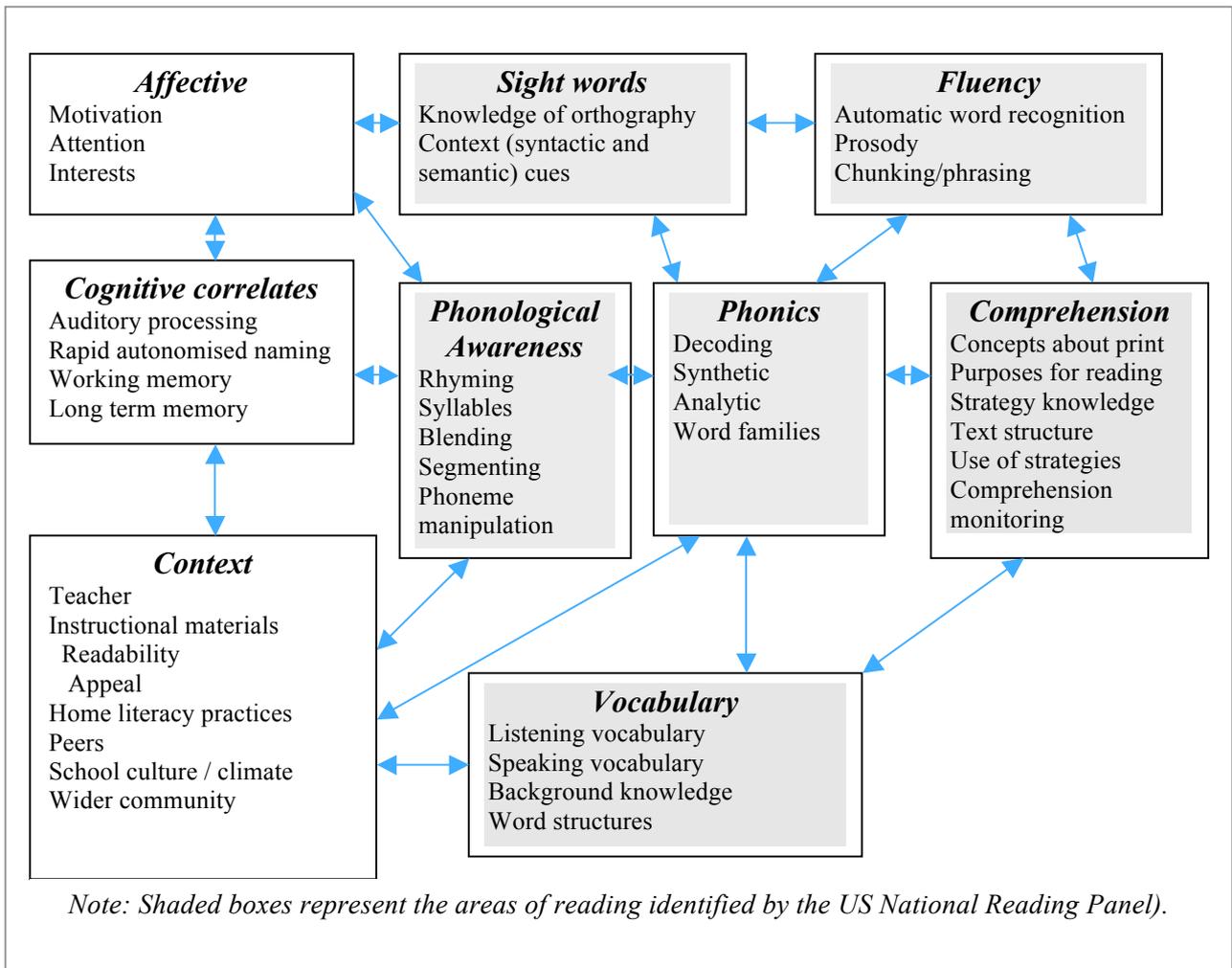


Figure 1. Inclusive model of reading. From: Bell, S. M. & McCallum, R. S. (2007). *Handbook of reading assessment*. Boston: Allyn & Bacon Pearson. p. 56.

The US National Reading Panel (National Institute of Child Health and Human Development, 2000) and the *No Child Left Behind* legislation (2001) endorse this view and have identified five essential skills for success in reading in the early years, namely:

- the alphabetic principle;
- phonological awareness;
- vocabulary;
- comprehension (includes concepts of print); and,
- oral reading fluency.

The Bell & McCallum inclusive model above shows the aspects of reading found to be crucial by the National Reading Panel in shaded boxes. The non-shaded boxes

identify other aspects of reading, which are equally important and are acknowledged in the conceptual framework of reading developed by the National Reading Panel (2001).

However, recent research has identified alphabetic knowledge, phonological awareness, vocabulary, comprehension and oral reading fluency, in pre-school children to be highly predictive of later reading success (Snow, Burns & Griffin, 1998). Thus, these five aspects are deemed to be particularly important in early reading development and provide a framework for assessment. In *Catch Them Before the Fall*, research conducted in Western Australia, Heath, Fletcher and Hogben (2006) found that, in addition to the above predictors, rapid automatised naming of objects and colours and existing reading knowledge are also important predictors of reading success.

However, the notion that there are accurate ‘predictors’ of literacy success and failure is not uncontested. According to Paris (2005), a degree of caution needs to be exercised when trying to predict children’s future success or otherwise by looking at scores of screening tests. Paris has suggested that educators need to view the notion that *unconstrained* skills such as letter knowledge and phonological awareness and phonics as predictors with some skepticism. He cites the dangers of seeing correlations as direct cause-effect relationships, and argues that the ‘predictive’ factors noted above are necessary but not sufficient for reading success.

Clearly, the development of the five aspects of reading identified by the National Reading Panel are influenced by affective, contextual and cognitive factors, all of which need to be taken into account when assessing children’s competence in these five areas (Bell & McCallum, 2007). In addition to this Fleet and Torr (2007 p.188) point out that ‘there are components of success which are not so easily identified or tested, and which need to be nurtured alongside observable behaviours.’ These include understandings of the how texts are used, how texts represent meaning and critical reflection on texts (Freebody, 1992).

The following section gives a brief description of these aspects of reading development and their associated assessment measures. A more detailed discussion

and analysis can be found in the literature review, with particular reference to issues that need to be considered in relation to children from culturally and linguistically diverse backgrounds.

Oral language and its relationship to reading

Children's oral language, which is largely outside the scope of this literature review, is an important contributor to reading success. According to Hiebert, Pearson, Taylor, Richardson, & Paris (1998), oral language serves two highly important functions in early reading: firstly, children's knowledge about words and sentences and their sensitivity to sounds, impact significantly upon their ability to learn to read, and; secondly, oral language enables discussion about texts, which in turn facilitates comprehension and learning. In addition, through oral language, children learn about the communicative functions of language, which are highly important in learning and using written language.

In *Every Child a Reader* (Hiebert, Pearson, Taylor, Richardson, & Paris, 1998), the oral language-reading connection is outlined. In connecting oral language to reading, children learn that oral language can be represented as print, and that phonemes are graphically represented by letters. They learn that texts have communicative purposes and that language structures and vocabulary vary in different oral and written contexts. Learning about the connection between oral language and written language begins early, often in pre-school and home contexts, and continues throughout primary school. The links between oral language and its importance to reading will be elaborated in the following sections. It is through discussion, observation and recording of children's engagement in a range of activities that their understanding of text user and text participant can be identified. Assessing critical reflection on texts is again largely identified through the recording of informal and semi-structured discussions around texts.

Concepts about print (CAP)

Concepts of print include knowledge about the directionality of text, knowledge about words and letters, that other symbols (punctuation and pictures, diagrams) have

meaning, that books are held a certain way, and that pages are turned in a particular way (Clay, 2002).

Assessment of concepts about print

Concepts of print can be assessed informally by observation, by questioning, or by asking children to perform specific tasks to demonstrate their knowledge, such as holding a book and turning the pages. More formal methods include Marie Clay's Concepts About Print assessment, which is part of The Observation Survey (Clay, 2002).

Phonological Awareness

Phonological awareness refers to the awareness and manipulation of the sounds units in language. Four levels of phonological awareness have been identified: word awareness, syllable awareness, onset-rime awareness and phoneme awareness (Lane., Pullen., Eisele & Jordan 2002). Research suggests that that phonological awareness develops through a gradual process of refinement of sounds, starting with broad distinctions between general sounds, moving ultimately towards fine gradations of phonemes.

Phonemic awareness refers to the ability to hear, identify and manipulate individual sounds, that is, phonemes in speech. Research suggests that phonemic awareness in conjunction with letter knowledge leads to more effective word reading, which leads to higher levels of comprehension (Stainthorp, 2003). As English involves the encoding of phonemes into graphemes, it is essential that children understand that words are composed of phonemes and that they can be represented by letters ('alphabetic principle').

Assessment of phonological awareness

There are several ways of assessing phonological awareness, and which method to employ will depend upon factors such as the number of children to be assessed, the amount of information the teacher already has about the child, and the amount of time available in which to carry out the assessments (Lane et al., 2002, p. 103). Also, the aspect of phonological awareness to be assessed and purpose for the assessment will influence the choice of measure.

According to Lane et al (2002), the best measures of phonological awareness are those that are administered on an individual basis, however, there are circumstances in which group administered assessments may be adequate for the purpose.

Performance based assessment - Observation of children performing specific tasks, such as the instructional tasks, can be an effective means of assessment. Examples and discussion of performance based assessment for each level of phonological awareness (word, rhyme, syllable, onset-rime and phoneme level) are described in section 4 of the literature review.

Informal assessments, such as the ‘Assessing Phonological Skills’ assessment constructed by Konza (2006, p.126) can be used to identify if a more formal and diagnostic assessment should be carried out.

Formal assessments - The Yopp-Singer (1992) test of is a means of assessing phoneme segmentation abilities. This assessment is composed of 22 single syllable words, which children are asked to segment into individual sounds.

The Astronaut Invented Spelling Test (AIST) (Neilson, 2003a) is an instrument for assessing children’s phonological awareness through their writing. The dictation test, which is part of the *Observation Survey* (Clay, 2002) also assesses children’s phonological awareness (phoneme segmentation) through their ability to write a series of words phonetically.

The Sutherland Phonological Awareness Test (SPAT-R) (Neilson, 2003b) follows on from the AIST and is intended as a diagnostic assessment for children who do not appear to performing well in the AIST. There are many other commercial measures of phonological awareness.

Heath et al (2006) have suggested that it is appropriate to screen all children in the middle of Pre-primary in phonological awareness, using an instrument with Australian norms, such as the SPAT-R.

Alphabetic knowledge

In order to link spoken language to written language, children need to learn about the alphabet. They need to learn how to recognise, name and write the 26 letters of the alphabet, prior to beginning to assign sounds to individual and combinations of letters. Children need to be able to distinguish between letter names, which are permanent and letter sounds which are variable.

Assessment of alphabet knowledge

The assessment of alphabet knowledge entails finding out which letters children can name and/or write, both in upper and lower case. Assessment can be implemented informally through talking with children about texts, analysing children's writing, and the observation of children using such materials as letter blocks. More formal methods of assessment include letter identification tasks and letter production tasks.

Word identification

Word identification, also referred to as word recognition, is a complex process that involves phonological awareness, phonics knowledge, and sight word knowledge and has been identified as a major contributor to reading success. Ehri (1995), and others, have proposed that word recognition develops in phases, although children do not necessarily proceed through the phases in a strict sequential manner:

- Pre-alphabetic phase, in which children recognise some letters by their shape and have an emerging understanding that letters represent sounds.
- Partial alphabetic phase, where children acquire more graphophonic knowledge and are able to decode some simple words, such as consonant-vowel-consonant words, such as 'dog'.
- Fully alphabetic phase, in which children are able to apply graphophonic knowledge to decode more complicated words, including unfamiliar words, and they instantly recognise some words ('sight words').
- Automatic reading phase, where children instantly recognise words through sophisticated decoding strategies and the use of context as confirmation.

Letter-sound knowledge (phonics)

Phonics has been defined as ‘the instructional practices that focus on the relationships between letters and sounds. It emphasises how spellings of words are related to speech sounds in systematic ways.’ (Hill, 1999, p. 8). Knowledge of letter –sound relationships enables children to decode words that they have not seen before. This gives them more control over the reading process and enables them to read a wider variety of words and texts. In turn, phonics helps children read independently and thus more frequently and widely, helping them build a larger ‘sight word’ vocabulary. Having a large sight word bank and being quick and efficient at decoding contributes to oral reading fluency (quick, accurate reading), which facilitates comprehension (Fox, 2008).

Torgerson et al (2006) carried out a literature review on the teaching of phonics and concluded that, there is no statistically significant difference in effectiveness between synthetic phonics instruction and analytic phonics instruction. What appears to be important is that instruction is explicit, systematic and incremental. There are a number of documents which identify phases of development of phonics knowledge, with very little variation between documents. Each acknowledges that children’s development will vary according to the teaching program and the children’s social, cultural and linguistic background. Details of these phases are in Appendix 1 of this report.

Assessment of phonics knowledge

There are several means of assessing phonics knowledge, and several schema for assessing it. As noted above, much depends on the type of phonics teaching that the children concerned have experienced. Phonic knowledge can be informally assessed by listening to children read (and analysing their miscues), through analysing their spelling and observation of word sorting activities. In addition, there are also many published phonics assessments, both informal and formal. Many phonics teaching programs, such as *Jolly Phonics* (<http://www.jollylearning.co.uk>), have integral assessments.

McKenna and Stahl (2003) have devised an Informal Phonics Survey, based on a comprehensive range of phonic items. They have also devised a test called ‘The Z

Test', which is a non-word test composed of words beginning with the letter 'Z'. Non-word tests ensure that children use phonics knowledge to decode them. In the USA, the Dynamic Indicators of Basic Literacy Skills assessment (Good et al., 2001), is frequently used as a means of assessing phonics knowledge and growth, since it comprises a section called Nonsense Word Fluency (NWF), which assesses decoding / phonics ability and speed. However, this type of assessment has been criticised for being meaningless to children.

The Early Names test (Mather, Sammons, & Schwartz, 2006) is intended to assess the phonics knowledge of children in the early years of school through the reading of names which use common letter patterns found in the English language. This assessment is not appropriate for children who are beginning readers, but may be useful in the phonics assessment of early readers.

Orthographic knowledge

Orthographic knowledge is knowledge about the 'system' of printed symbols / letters and letter groups, that represent spoken language (Bell & McCallum, 2007).

Knowledge of letter names, which has been discussed above, comes under the umbrella of orthographic knowledge.

Sight words and automatic word recognition

Automatic recognition of words, without the need to consciously decode, is known as sight word recognition. This is necessary for fluent reading and good comprehension, as it allows the reader to concentrate on higher order processes.

Assessment of automatic word recognition

This is usually carried out through the use of high frequency word lists. The OSELA (Clay, 2002) includes high frequency word lists, as does the DIBELS and many other published assessments, including Informal Reading Inventories. However, it is difficult to know with any certainty whether a word is a 'sight word' or whether it is being automatically, instantaneously decoded by a child. Also, the practice of having children read lists of words in isolation can be criticised as being a task that children may find meaningless and confusing, since it is not the kind of reading task that

would normally be carried out in the classroom. Furthermore, children cannot use all cueing systems when reading words in isolation.

Vocabulary for reading

Vocabulary knowledge is a crucial aspect of reading, as it facilitates word identification and comprehension. Limited vocabulary can, however, be both a cause and an effect of poor reading ability, since vocabulary can be improved through reading. According to Harmon, Hedrick, Soares and Gress (2007, p. 138), ‘Knowing a word, means not only knowing the meaning, but knowing the contexts in which it is used; it means knowing related words and ideas; it means knowing when and where to use a word.’ Receptive vocabulary refers to the ability to listen to and read the words with understanding, as well as infer the meanings of words, without necessarily being able to use them in speaking and writing (expressive vocabulary).

Assessment of receptive vocabulary

Receptive vocabulary has traditionally been assessed through questioning and asking children for definitions. However, this may give limited knowledge about whether children have a ‘deep’ concept of the word. According to Harmon et al (2007), three effective ways of assessing vocabulary are:

- asking children to provide synonyms and antonyms of the word;
- asking children to categorise words under headings; and,
- observing children’s use of the word in oral and written contexts.

In addition, picture vocabulary assessments can be used, where children are shown pictures and are asked to point at a picture that matches a stimulus word pronounced by the teacher / administrator, for example, the Peabody Picture Vocabulary Test – Revised (Dunn & Dunn, 1997).

Reading comprehension

Reading comprehension has been defined as ‘the process of simultaneously extracting and constructing meaning through interaction and involvement with written language’ and consists of three elements: the reader, the text and the activity or purpose for reading (Snow, 2002, p. xiii). For children in the early years, decoding and comprehension are highly correlated; good decoders are usually good at reading comprehension and poor decoders are usually not good at reading comprehension.

In order to comprehend texts efficiently, children need to be able to decode the words, have an appropriately developed spoken vocabulary, have knowledge of text structures, have some relevant background knowledge to bring to the text, and be able to choose and use a range of comprehension strategies, such as inferring, creating mental imagery, self-monitoring for meaning, clarifying, summarising and predicting (Duke & Pearson, 2002). It is thus important to assess each of these elements, particularly, if the child's level of comprehension appears to be of concern.

Assessment of reading comprehension

Comprehension, because of its complexity, is difficult to assess, and there is no consensus regarding the best way to do it (McKenna & Stahl, 2003). A combination or 'system' of assessments is the most appropriate way of assessing comprehension. There are a number of assessments available which relate to different aspects of comprehension. These include:

- word comprehension measures;
- passage comprehension measures (questions related to levels of comprehension);
- story retelling measures;
- cloze procedure measures; and,
- curriculum-based measurement of reading comprehension (Rathvon, 2004).

The Neale Analysis of Reading Ability (NARA), (Neale, 1999), is a popular formal means of assessing reading comprehension (in children aged six and above) in Australia. Despite criticisms about the limited numbers of inference types and whether it actually measures listening comprehension as opposed to reading comprehension, Cain and Oakhill (2006) have concluded that the NARA is an effective instrument for researchers and practitioners to measure reading comprehension, as well as word reading accuracy.

Reading fluency

Most definitions of reading fluency include accuracy, rate, phrasing and expression, although some also include comprehension (Samuels, 2002). Fluency is related to

comprehension and develops alongside word identification, through guided repeated oral reading practice and self-monitoring of reading for fluency.

Assessment of reading fluency

Since there is no consensus on the definition of reading fluency, and thus no consensus on how it should be assessed (Oakley, 2005). Traditionally, fluency has been assessed primarily through measuring words read per minute (WPM) or words correct per minute (WCPM). A problem with this type of measure is that it emphasises speed and accuracy at the expense of meaning. Children can be given the impression that ‘reading fast’ is good reading.

Zutell and Rasinski’s (1991) Multidimensional Fluency Scale (MFS), measures more than just rate and accuracy. It is an informal assessment that constitutes rating scales of expression and volume, phrasing, smoothness, and pace.

The Rubric for Fluency Evaluation (Fountas & Pinnell, 1996) is a more formal approach to assessing reading fluency. Here, children read aloud a section of instructional text (90-94% accuracy) that they have previously read, twice. This rubric has been adapted by Reutzel and Cooter (2005) and allows teachers to rate the reading as: Nonfluent reading; beginning fluency; transitional fluency, or; fluent reading.

The Dynamic Indicators of Basic Literacy Skills assessment (Good et al., 2001), which is widely used in the USA, and freely available on the DIBELS website (<https://dibels.uoregon.edu>), includes an oral reading fluency measure (ORF), which measures word read correctly per minute. Critics argue, however, that this type of assessment penalises children who read at a slower rate, but who may be making more meaning (Riedel, 2007).

Knowledge and assessment of reading strategies and processes

This relates to the encouragement of self-regulation through the use of metacognitive strategies. Effective readers are able to identify purposes for reading and apply strategies that are appropriate for the purpose (McKenna & Stahl, 2003). Reading strategies can be assessed by means of observation or by interviews, such as the Burke Reading Interview (Burke, 1987). This inventory asks questions such as: Who

is a good reader? What makes that person a good reader? Do you think you are a good reader? Why? The First Steps materials (Annandale et al., 2004a, 2004b) also include interviews and suggestions for teaching and assessing reading processes and strategies.

Affective factors

Children's interests, motivation and self-perceptions as readers are crucial in becoming successful readers and there is a reciprocal relationship between motivation and literacy success (Gambrell & Ridgeway Gillis, 2007).

Assessing affective factors

Motivation can be assessed informally through interviews with the child and/or with the parent and by observing children's behaviour in reading situations. Conversations with children can be most informative (Edmunds & Bauserman, 2006). More formal assessments include The Elementary Attitude Survey (ERAS) (McKenna & Kear, 1990), which is an instrument that assists in the assessment of children's attitudes towards recreational and academic reading.

Other published tools include the Motivation to Read Profile (MRP) and Me and My Reading Survey (MMRS) (Gambrell, Palmer, Codling, & Mazzono, 1996). The MRP is composed of the reading survey and a conversational interview. The survey is a self-report measure that is intended to measure children's views about themselves (self-concept) as a reader, as well as the value they place on reading. This is administered in a group context and may not be appropriate for younger children.

A description of assessment tools for the above aspects of early reading can be found in Appendix 2 of this report: Reading in Early Childhood - A Toolbox of Assessments.

4.2.5. Approaches to assessment of reading in Early Childhood

What is the purpose of assessment?

In order to make decisions about the most appropriate type of assessment to use, it is important to begin by asking what is the purpose of the assessment. Appropriate

assessment in the area of reading has several purposes (National Inquiry into the Teaching of Literacy, 2006). Schumm and Arguelles (2006) have identified six major purposes of reading assessment:

1. To screen students for initial groupings, instruction and to find out whether further assessment is needed;
2. To identify students' areas of strength and need;
3. To monitor growth/progress in reading development;
4. To measure student outcomes in reading;
5. To evaluate the efficacy of teaching programs;
6. To report to parents and educational systems.

4.2.6. Context of assessment

Not only does the purpose of the assessment influence a teacher's choice of assessment, but the context and the individual child concerned must also be taken into account. As noted by Farr & Trumbill (1997, p. 2), 'Good instruction and assessment should look different in different environments, depending on the students served'. There is clearly no one 'best way' to assess children's reading progress, or one 'best' set of literacy assessments.

4.2.7. What types of assessment should be used?

There is a wealth of formal and informal assessment measures that are designed to measure one or more aspects of early reading development. However, it is useful to view these tools along a formal-informal continuum as many assessments do not fall neatly into either of the categories. Because of the different nature and purpose of different types of assessments, it is not possible to evaluate them all in exactly the same manner. Criteria need to be looked at differently according to whether an assessment is formal or informal. The criteria for selecting appropriate assessment tools is described in section 8 of this report and in further detailed in the literature review.

Formal Assessments

Standardised tests

Standardised tests are administered and scored in a structured, prescribed way to ensure consistency and reliability. Such tests often have scripts that are read out by the teacher / administrator. Standardised tests may be norm-referenced or criterion-referenced. They are always formal assessments. As suggested above, the use of standardised tests needs careful consideration as many are based on the assumption that literacy is a set of skills that a child has or needs to acquire. In addition, because they are normative they are often used as an indication of a child's overall ability rather than an indication of what is yet to be learned.

Norm referenced assessment

Norm referenced assessments are formal assessments that compare the performance of the student concerned to that of a reference group of peers. Test developers give the test to a large group of the 'norming' population in order to ascertain performance norms. Norm referenced assessments, thus, compare students to others, or rank them, often allocating a percentile or a stanine. A problem for the Australian population of children, and for the Western Australian population in particular, is the absence of local norms; many of the standardised assessments available have USA or UK norms only, which many not be appropriate for local children. This renders many norm-referenced assessments available less than useful for local contexts.

In addition, norm-referenced assessments may not be appropriate for use with culturally and linguistically diverse (CALD) children because of bias in concepts tested, language of testing, under-representation of CALD children in norming groups and the misinterpretation of CALD children's responses (Laing & Kahmi, 2003).

Criterion referenced assessments

'A criterion-referenced measure compares a child's performance on a specific skill, grammatical structure, or linguistic concept to independently predetermined criteria' (Laing & Kahmi, 2003, pp., p.46). Criterion referenced assessments are often more sensitive to the needs of individual children because they can be related to the teaching program and context. Because they focus on outcomes they are also a useful

means of informing appropriate teaching and learning programs. However, ‘benchmark’ assessments designed to indicate minimum performance may be problematic, as these may be somewhat arbitrary and may not relate to the teaching program concerned.

Survey assessments

‘Survey tests attempt to provide a broadly defined estimate of a student’s overall achievement level in a given area’ (McKenna & Stahl, 2003, p. 24). These kinds of assessments give a broad idea about achievement but do not provide specific enough information to be useful in planning instruction. They are useful in indicating which children may require ‘deeper’ assessment. The WALNA, in its present form, would be categorised as a survey assessment.

Screening assessments

Screening assessments are used to gain preliminary / baseline information about students in order to make decisions about groupings and instructional strategies (Reutzel & Cooter, 2005). Screening assessments should be quick and are usually carried out on a whole class or group basis, although some are administered on an individual basis, especially in early childhood contexts (McKenna & Stahl, 2003). They do not provide teachers with detailed information about the various aspects of a child’s reading strengths and areas of need.

Research suggests that screening assessments need to be administered early in the school year as a means of identifying students who may experience or are experiencing difficulty. Information from the assessment should be used to plan a differentiated teaching and learning program. It is important to ensure that the timing and content of screening assessments are appropriate for all children, with careful consideration for children from culturally and linguistically diverse backgrounds.

Many screening assessments have ‘benchmark’ scores, below which children are deemed to be ‘at risk. However, benchmarks are often contested and, in the case of Australia, it has recently been suggested that benchmarks set by governments are too low, and thus tend to ‘under-identify’ children who are at risk (Senate Standing Committee on Employment Workplace Relations and Education, 2007). Heath,

Fletcher and Hogben (2006) have also devised and tested a screening procedure for use with pre-primary children in Western Australia. Details of this can be found in Appendix 2, Reading in Early Childhood: Toolbox of Assessments.

Diagnostic assessments

Rathvon (2004, p.12) states that the purpose of diagnostic assessment in the early years is ‘To provide information about the nature and extent of reading problems for intervention planning and educational programming.’ However, Harris and Hodges (1995, p.86) define reading diagnosis as ‘an astute analysis of the process by which [a student] gains meaning, significance, enjoyment, and value from printed sources.’ Thus, diagnostic assessment involves the gathering and careful evaluation of detailed data in order to understand individual students’ reading *processes* and to enable the planning of appropriate learning activities. Thus, diagnostic assessment is not necessarily reserved for children with ‘difficulties’, but can be used to diagnose strengths and areas of need in all children. These assessments are usually conducted on an individual basis.

Progress monitoring assessments

Progress monitoring assessments measure children’s ‘growth’ towards meeting specified literacy outcomes (Coyne & Harn, 2007). This is crucial in the early years because development is rapid and it is important to recognise and document the skills and knowledge children have in order to provide appropriate building blocks. Progress monitoring assessments should be carried out with increased frequency for children who appear to be having difficulty in making progress, to help identify the appropriateness of the teaching and learning program (Coyne & Harn, 2007; Schumm & Arguelles, 2006).

Outcomes based assessment

Outcomes / achievement assessments are summative assessments, documenting what a child has learnt over a period of time, such as a school term. They measure long term growth (Walpole & McKenna, 2004) and include large-scale measures such as WALNA (*Western Australia Literacy and Numeracy Assessment*). In effect, progress monitoring assessments provide confirmation of what the teacher already knows

through a compilation of progress monitoring and diagnostic assessments (Coyne & Harn, 2007).

Informal assessments

Informal assessments are an important component of all reading assessment systems, and have been an integral part of early childhood pedagogy for many years (Bell & McCallum, 2008). Informal assessments in reading include teacher made assessments, observations, conversations, and some commercial assessments such as Informal Reading Inventories (IRIs) and running records. It is suggested that informal assessments provide a broader picture of children's understanding and use of literacy, than decontextualised tests. Laing & Kahmi (2003), have suggested that informal assessments are particularly appropriate for culturally and linguistically diverse (CALD) children, because teachers are able to take into account the relationship between cultural and linguistic factors and learning outcomes.

Informal assessments can also be used to document information about the children's first languages and dialects. Informal assessments help to complete the picture of children's use and understanding of their home language(s) and indicate their importance to children, parents and community. These assessments give teachers insights into children's level of competence in home language(s) and provide information about differences between languages and how these might influence the learning of English. Capturing children's competence in their home language(s) involves the voice of parents, children and teachers through discussion and observation and recording of learning in different domains.

Dynamic Assessment

In recent years there has been an increased interest in the notion of dynamic assessment, which is an interactive means of assessment that takes into account the learner's capacity to respond to intervention or support. According to Kletzien and Bedmar (1990), dynamic assessment is less likely to paint a 'deficit' picture of children in that it does not focus on what students *cannot* do. Dynamic assessment uses Vygotsky's (1978) notion of 'zone of proximal development' as a theoretical base, and assesses what children are in the process of mastering (or can do with

support) as well as what they can do independently. In the context of reading, ‘responsiveness to intervention’ (RTI) has been put forward as a valid method of identifying children who might be ‘at risk’ of reading problems, and as less likely than ‘traditional’ methods to over-identify children who are not at risk as being so (Fuchs., Compton., Bouton., Caffrey & Hill, 2007).

Student self-assessment

Because often much assessment is done *to* and *for* students, and not *by* students, it does not encourage students to monitor their own progress (Afferbach, 2007a). As the development of meta-cognitive strategies has been identified as an important part of reading, helping students to set goals and evaluate success in achieving these goals is potentially an effective ways of supporting independence. Reflecting on progress is another means of helping students to identify areas of strength and areas of weakness.

Parent Interviews

Research has shown that there is a high correlation between parents’ assessments of their 3 and 4-year old pre-school children’s literacy knowledge with later school-based assessment data (Dickinson & DeTemple, 1998). Boudreau (2005) has also found that parental interviews are useful in predicting children who may later have difficulties in school language and literacy. Information about language and literacy practices for children from culturally and linguistically diverse families is especially important as a means of informing the teaching, learning and assessment program.

Running Records

Running records are a common informal means of assessing young children’s reading processes, and are an important component of Reading Recovery programs and many Guided Reading programs (Fountas & Pinnell, 1996). In running records, the teacher records the errors and self-corrections that children make in order to calculate an error rate, a self-correction rate, and to make hypotheses about which of the three cueing systems (meaning, syntactic, visual/graphophonic) children are effectively using. Running records give teachers insight into children’s reading strengths and needs, and can help teachers select texts at appropriate levels for learning.

Informal Reading Inventories

Informal Reading Inventories (e.g. Burns & Roe, 1989; Johns, 2005; Manzo, Manzo, & McKenna, 1995), contain graded reading passages which children read aloud. Their reading rate and accuracy are recorded, and comprehension is assessed through several (approximately eight to twelve) questions, ranging from literal to critical. Questions relating to vocabulary are also often included. Graded word lists are included to assist teachers in deciding which level of text the child should read.

Although popular, a number of limitations have been identified, these include their inability to track reading progress over time, problems in assessing comprehension adequately and the time it takes to administer (Paris & Carpenter, 2003). Walpole and McKenna (2006), have suggested that the IRI has a useful place as an initial screening instrument, but should be followed up by assessments that have a higher degree of reliability and diagnostic capacity. They point out that the results of IRIs are, in themselves, not specific enough to inform planning, particularly in beginning readers and older, struggling readers. They are, however, useful as part of a comprehensive system of assessment tools, for children of approximately five years of age onwards.

Portfolios

A student portfolio can contain information from both formal and informal assessments, and is used to show a student's development across time; it is thus a longitudinal record of learning rather than a 'snapshot' of achievement at a particular moment in time. The processes and products of a child's literacy learning can be assessed using portfolios. For the most part, portfolio assessments are formative and informal, and this means that immediate feedback can be given to children to enhance their learning. However, summative assessment can be achieved in an authentic way by the building of portfolios, in which children's work processes are documented and their work products are collected and commented upon with reference to particular outcomes. Portfolio assessment has much potential as a means of accommodating diversity. Also, because the child should collaborate in the selection of pieces for the portfolio and should reflect on them (Cohen & Wiener, 2003), it can be seen as a highly educative assessment that considers the voice of the child.

Computer assisted assessments

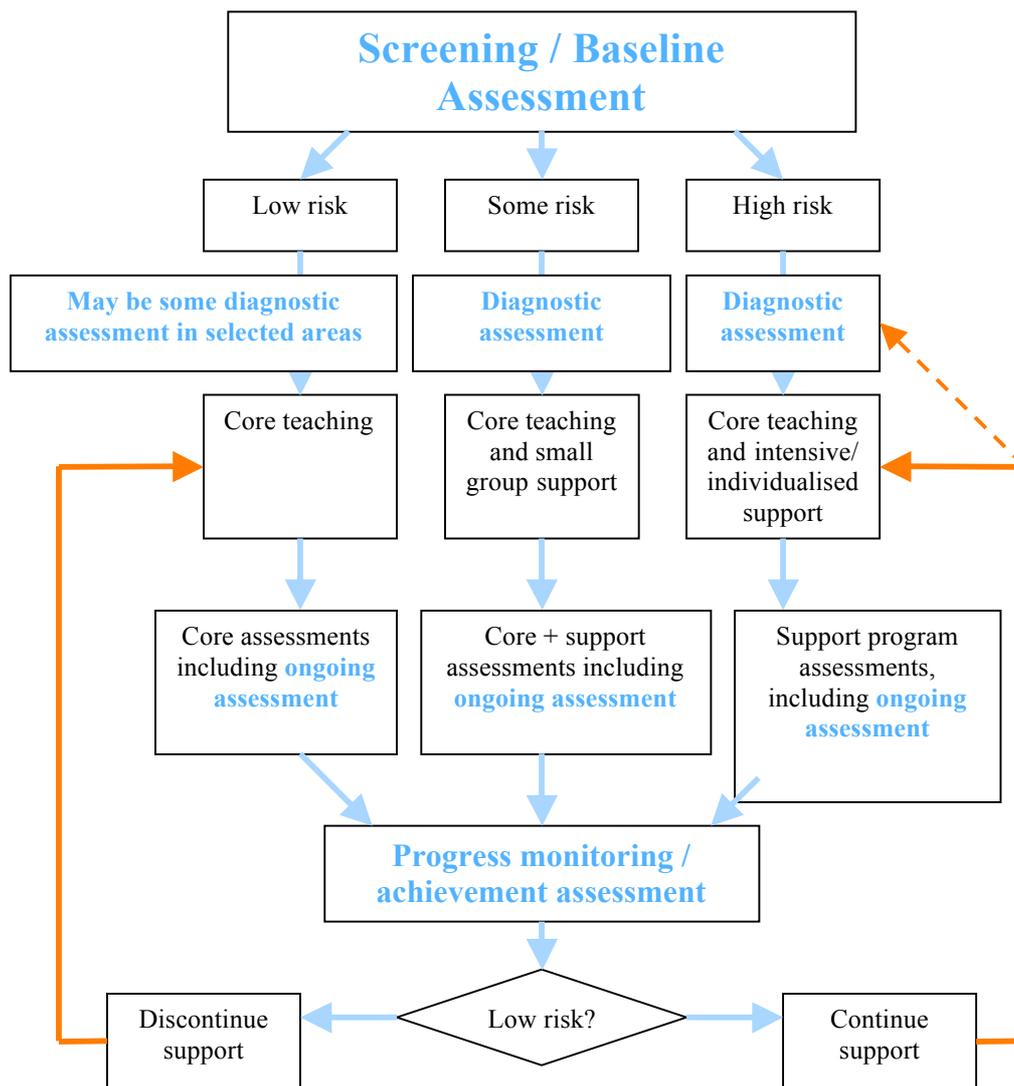
In recent years, computer assisted literacy assessments have been developed to assist teachers. For example, in the USA, STAR Reading and STAR Early Reading software by Renaissance Learning is being used in thousands of classrooms to assist in the speedy assessment of children's reading abilities. In the UK and in Australia, programs such as Performance Indicators in Primary Schools (PIPS) are available. According to PIPS Australia (<http://www.education.murdoch.edu.au/pips>), in 2006 PIPS was being used by more than 700 schools in this country for on-entry baseline literacy assessment, including more than 300 WA schools across all sectors. Research relating to the efficacy of computer assisted assessments is still relatively scarce, so it is not possible to discuss in detail the efficacy of such systems.

Godfrey & Galloway (2004) carried out an evaluation of PIPS with a small sample of Indigenous children in Western Australia. They found that this computer based assessment was a valid and reliable assessment for use with these students, although some educators have questioned the cultural appropriateness of the measure for this population.

Selecting assessment types

Clearly, assessment tools differ from each other in a number of important ways. When selecting assessment tools it is important to consider what they measure, instructions for their use, the intended age range, scoring, interpretation and implications of results and the appropriateness for use with children from diverse social, cultural and linguistic families. Ultimately the quality of assessment will depend largely on decisions made by the teacher, before the assessment is undertaken.

The following diagram shows how, when and why different types of assessment might be used in a teaching / learning cycle.



Based on A model of assessment driven reading instruction by McKenna, M & Walpole, S. (2005). How well does assessment inform our reading instruction? *The Reading Teacher*, 59 (1), p. 85.

The model above suggests that baseline / screening assessments occur occasionally, annually at most, while other types of assessment occur more frequently, with ongoing, cumulative informal assessments proceeding in a formative fashion throughout teaching. McKenna and Walpole’s model uses terms such as ‘at risk’ and ‘support’ (changed from ‘intervention’ in the original model), but it should be recognised that these terms can be problematic in that ‘risk’ cannot be said to reside in the child but in the child’s educational context, and it is acknowledged that most children bring a wealth of literacy knowledge from home. However, they may be termed ‘at risk’ when accurate and appropriate assessment has indicated that, without extra / modified teaching, children may not learn literacy successfully.

5. Evidence based criteria for selecting assessments

Criteria for evaluating assessments must take into account the purpose and thus the type of assessment. Although it has been possible to identify a set of key criteria, these will be unpacked differently according to the purpose of the assessment. A comprehensive list of questions related to the criteria for formal and informal assessment tools are listed in Appendix 3 of this report. Examples of the above assessment tools measured against the criteria are detailed in Appendix 4 of this report.

The following set of general questions is offered as a guideline to help clarify the purpose and goals of assessment prior to selecting an appropriate assessment tool:

- What are the purposes and goals of the assessment? (Why am I assessing?)
- What will be assessed?
- How will emerging development of proficiency manifest itself? (What will I look for?)
- What strategies/techniques will be utilised?
- Who shall be involved?
- When and where will assessment take place?
- How will assessment data be recorded, assembled, accessed?
- Against what criteria shall outcomes be measured?
- How will information be interpreted?
- How will assessment data be used?

(McAfee & Leong, 2002, p. 32; Puckett, 2000)

Having identified the purpose of assessment, the following criteria have been developed from a range possibilities outlined in the literature on assessment. Rahn, Stecher, Goodman and Alt (1997), capture the essence of this debate through the identification of are two broad criteria to use when choosing assessments of any kind, these are the *quality* and *feasibility* of the assessment. Within these two broad criteria, there are a number of more specific criteria, as set out in Table 1 (below). A further broad criterion, '*situational alignment*' has been added, to take into account the

importance of judging the appropriateness of assessments for the particular assessment situation.

Quality	Technical adequacy of assessment	<ul style="list-style-type: none"> - Validity - Reliability
	Quality of instructions for administrator	<ul style="list-style-type: none"> - Clear instructions for administration - Clear instructions for interpretation - Clear links to practice
	Educative	<ul style="list-style-type: none"> - Feedback for children - Assessment provides information to inform planning
Feasibility	Cost	<ul style="list-style-type: none"> - Initial cost - Ongoing costs (such as test papers)
	Complexity	<ul style="list-style-type: none"> - Special qualifications needed by teacher? - Ease of use
	Time	<ul style="list-style-type: none"> - Administration time - Scoring and evaluation time - Group or individual administration
Situational alignment	Appropriateness for assessment purpose	<ul style="list-style-type: none"> - Appropriate for purpose (e.g. monitoring, diagnostic, screening) - Appropriate for assessment domain (e.g. phonological awareness, comprehension) - Provides useful information that is not more readily available elsewhere
	Alignment with classroom practices	<ul style="list-style-type: none"> - Aligns with classroom teaching / learning practices - Aligns with curriculum
	Alignment with individual child	<ul style="list-style-type: none"> - Developmentally appropriate - Culturally appropriate - Appropriate format - Clear instructions for child

Table 1. Criteria for choosing literacy assessments

These general criteria relate to both formal and informal assessments. However, the questions related to the criteria differ according to the type of assessment tool.

6. Issues in the assessment of reading in Early Childhood

6.1. Teacher expertise

The interplay between the reading process and the learner in early childhood classrooms makes reading assessment complex and multifaceted. The literature suggests, that ultimately, there is no substitute for a skilled, reflective teacher who understands the different types of assessments and their various purposes, and who reflectively interacts with students and parents / carers in order to find out what they know and what they can do (Valencia, 2007). Research suggests that a central component of effective teaching and assessment is a deep knowledge of the reading process coupled with an understanding of how young children learn (Louden et al, 2005).

6.2. Comprehensive assessment systems using multiple measures

Because of the nature of learning in early childhood and the interplay between internal and external factors, the literature suggest that it is important to use a variety of assessment measures, in different learning contexts, over time. A comprehensive assessment system requires multiple data sources from multiple viewpoints and reading contexts. A single 'snapshot' assessment is inadequate, especially in the early years when growth can be rapid, episodic, and children's competence varies according to the task and context of learning. Assessing reading knowledge and skills through a comprehensive assessment scheme, which may include screening can assist teachers to identify children that need further diagnosis and assistance.

Some research has indicated the need for comprehensive models of reading assessment in the early years, which would serve as guides for teachers (McGee, 2007). This type of model may constitute a useful 'roadmap' for teachers, but care should be taken that externally mandated assessments do not become prevalent. The literature warns that too much emphasis on externally mandated, prescribed assessments and batteries of assessments can, in fact, be counter-productive, in that teachers may resort to a more shallow, measurement-based curriculum and may lose

confidence and skills in rich classroom-based, internal assessments (Valencia & Villarreal, 2003; Valencia, 2007).

6.3. School entry assessment

There has been a movement towards the introduction of school entry assessments in Australia, with NITL (2006) and WALNR (2006) endorsing this movement. There is ongoing debate about the purposes, efficacy and fairness of on-entry assessments, with the main cause for concern being associated with the possibility of misidentification (under or over-identification) of children as ‘at risk’. Also, there are concerns about the ability of on-entry assessments to be ‘fair’ and appropriate to children from a diversity of social and linguistic backgrounds.

7. Summary of Scoping of resources in Western Australia

Existing assessment resources were identified by:

- Reviewing the literature and available information on the web
- Meeting/ corresponding with other suppliers, policy makers, teachers or officers in the field
- Searching library catalogues

From information received, it is clear that a range of literacy assessment techniques are being used in Western Australian schools, with mainly informal tools being used in classroom contexts and formal test being used by student services. Appendix 5 of this report gives details of assessments used by teachers, literacy support staff and educational psychologists in Western Australia. Some assessments that are mentioned in the literature were not available for examination because they were either unavailable in Australia or the cost was prohibitive. It is interesting to note that, occasionally, profiling devices and teaching programs were identified as assessments.

8. Implications for Policy and Practice

Although reading is only one part of early literacy, as requested in the brief for this report, we focus on implications for policy and practise in relation to reading.

1. There is a need for a clear overarching strategy and policy position for assessment in the early years, which takes into account the diversity of experiences that children bring to school contexts. DET should provide recommendations about if, when and how to implement initial screening (as part of a comprehensive assessment program) to inform the development of appropriate teaching programs and intervention.

2. Teachers and schools need to collaboratively select appropriate assessment tools from the toolbox of assessments, using the criteria provided in this report. Tools should be chosen to suit the specific context and purpose of the assessment that complement teacher philosophy and school goals. This would help schools to build a comprehensive assessment system.

3. Teachers and schools should be encouraged to discuss and justify their selection of the particular tools they intend to use, in each phase of early childhood development. This should include reference to the specific needs of children from diverse cultural and linguistic backgrounds.

4. Teachers and schools should be encouraged to include assessments, in the appropriate phases of development, that cover all of the areas identified as critical to early reading success:

- **Phonological knowledge (encompassing phonemic awareness)**
- **Alphabetic knowledge (encompassing phonics and word identification)**
- **Vocabulary**
- **Fluency**
- **Comprehension (encompassing concepts of print)**
- **Affective factors**

5. As far as possible, assessment of early reading should be embedded in education programs and no assessment should take place without a clear pedagogical purpose. This should include reference to ways of recording children’s use and understanding of home language(s) and take place through appropriate early childhood assessment practices.

6. Assessment should provide teachers with informative data to support the effective teaching of all aspects of reading identified above. Schools should be encouraged to use the assessments tools selected in an ongoing manner, over time, as a means identifying changes in results in order to gauge the effectiveness of the assessment tool.

7. If norm-referenced assessments are to be used in the Western Australian context, local norms should be developed and updated periodically. Likewise, professional discussion about the setting of benchmarks should inform the use of criterion referenced assessments.

8. Teachers should be provided with professional development about the criteria and how to use assessment tools effectively, in order to use the resulting data to inform teaching programs.

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APPENDICES

Appendix 1

Sequence of Phonics Development

Letters and Sounds

According to the UK Primary National Strategy resource, *Letters and Sounds*, there are six main phases of development of phonics knowledge (Department for Education and Skills (DfES), 2007).

1. **Phase One** is a foundational phase in which children learn phonological awareness skills such as blending and segmenting words. This is preceded by general listening activities, based on recognising environmental and musical sounds.
2. **Phase Two**, for which the duration is approximately six weeks at the beginning of school, involves learning 19 letters of the alphabet and one sound for each. Children also learn to blend and segment sounds, and use their knowledge of blending and letter sounds to decode simple captions.
3. **Phase Three** involves learning the 7 letters of the alphabet not covered in Phase One, and consolidating those from Phase One. Blending and segmenting sounds represented by single sounds and graphemes of more than one letter is covered here. This phase is based on approximately 12 weeks of teaching.
4. **Phase Four** involves blending and segmenting words with adjacent consonants and consolidating grapheme –phoneme correspondences already introduced, and takes approximately 4 -6 weeks of teaching.
5. **Phase Five** builds on the phonemes and graphemes introduced in Phases Two and Three and is implemented throughout the 1st year of school. This includes the introduction of more graphemes to represent phonemes already taught and the blending and segmenting of sounds represented by all grapheme-phoneme correspondence taught so far.
6. **Phase Six** involves word specific spellings of same sounds (eg sea / see) and increasingly fluent sounding and blending of words encountered in reading for the first time, alongside spelling of words with prefixes and suffixes. This is implemented throughout Year 2.

<http://www.standards.dfes.gov.uk/local/clld/las.html>

Example of teaching sequence

The development of phonological awareness and phonics depends to a large extent on the order in which it is taught. The chart below shows a suggested teaching sequence, which begins with simple concepts and proceeds to more complex graphophonics concepts. Assessment of phonics and phonological awareness should be linked to the sequence in which it is taught.

Skill	Description	Example
Common consonant sounds	Identify consonant sounds, match sounds to letters, isolate sounds in words, substitute sounds in words.	/d/, /b/, /t/, /s/, /p/, /m/, /n/, /f/
Less common consonant sounds	As above.	/g/, /h/, /j/, /k/, /l/, /q/, /v/, /w/, /x/, /y/, /z/
Short vowel sounds	Identify the five short vowel sounds and match them to letters.	/ă/ as in cat, /ĕ/ as in egg, /ĭ/ as in wig, /ŏ/ as in rot, /ŭ/ as in cut.
CVC vowel pattern (include non-words)	Read and spell CVC pattern words.	dad, ten, sat, hip, put, zog
Consonant blends	Identify and blend consonant sounds (beginning and end of words).	/pl/ as in play, /str/ as in string, /mp/ as in camp
Onset and rimes – short vowel words	Break CVC and CVCC words into onsets and rimes and substitute onsets and rimes to make new words.	c-at, c-amp, st-amp, sp-ill,
Consonant digraphs	Identify consonant digraphs, match sounds to letters, and read and spell words with consonant digraphs.	/ch/ as in chip, /sh/ as in shop and wish, /th/ as in that and bath, /wh/ as in when, why, what
Long vowel sounds	Identify the five long vowel sounds and match them to letters.	/ā/ as in game, /ē/ as in seen, /ī/ as in ice, /ō/ as in rope, /ū/ as in cute, tube, few.
CVCe words	Read and spell CVCe words.	game, ride, slide, bone, lame
Common long vowel digraphs	Identify vowel sounds represented by common long digraphs. Read and spell words using them.	/ā/ as in rain, day /ē/ as in beach, sweet /ō/ as in soap, know
W and Y as consonants and vowels	Recognise W and Y as consonants at the beginning of words / syllables and as vowels at the end. Identify sounds made.	window, yesterday by, baby
Onsets and rimes – long vowel words	Divide CVCe and other long vowel words into onsets and rimes and substitute onsets and rimes to make new word	ch-ase, sl-eep, fl-y, m-ole, b-each
Hard and soft consonant sounds	Identify hard and soft sounds represented by the letters C and G and read and write words using these consonants.	/g/ as in girl, /g/ as in giraffe /c/ as in cat, /c/ as in circle
Less common vowel digraphs	Identify the vowel sounds of less common vowel digraphs and read and write word using them.	/ô/ as in walk, caught, saw, bought, /ā/ as in weigh, /ē/ as in key, chief

		/ī / as in pie, eye /ōo/ as in would, could, should, /ū / as in stew, blew, fruit
Vowel diphthongs	Identify the vowel diphthongs and read and write words using them.	/oi/ as in boil, boy, spoil
Less common consonant digraphs	Identify the sounds made by the less common consonant digraphs and read and write words using them.	/ph/ as in phonics, graph /gh/ as in laugh, /ng/ as in sing, hang /tch/ as in switch, match
r-controlled vowels	Identify r-controlled vowel patterns and read and write words using them.	/âr/ - hair, bear, bare, their, there /ar/ - star /er/ - here, fear, deer /or/ - worn, store /û/ - first, bird, burn, work
Consonant spelling patterns	Read and write words using these spelling patterns.	/g/ - girl, ghost /j/ - jet, gem, rage, lodge /k/ - cat, kettle, sock /s/ - sun, circus, goose /z/ - zoo, rise, logs

Adapted from Tompkins (2007, p. 110)

Every Child a Reader

In *Every Child a Reader* (CIERA), from the USA, a sequence of word recognition development that is related to grade level is suggested. It needs to be borne in mind that development depends largely on what is taught in the classroom and that many children will not develop in the same sequence (partly because of external influences), and that the notion of developmental phases is more useful than age-based or grade-based levels, since there are many levels of development in a typical classroom.

K (PP in Western Australia)	Has knowledge of many letter-sound correspondences.
	Begins to understand that the sequence of letters in a written word represents the sequence of sounds or phonemes in the spoken word.
First grade (Yr 1)	Decodes single syllable words in texts phonetically.
	Monitors own reading through using the syntactic and semantic cueing systems.
Second grade (Yr 2)	Instantly recognise single syllable words through the use grapho- phonic knowledge and through the use of analogy.
	Decodes multi-syllabic words through phonic and structural analysis.
Third grade (Yr 3)	Decodes most unknown multi-syllabic words that are not in sight word store.
	Recognises most words automatically.

Every Child A Reader (Hiebert, 1998).

Appendix 2

Reading in Early Childhood: Toolbox of Assessments

** Note that some of the formal assessments do not have local / Australian norms. These should be developed for the local context.*

** This toolbox is not exhaustive.*

** Teachers should choose assessments suitable for the purpose and context.*

Assessment Domain	Formal.....Informal	
Concepts About Print	Concepts About Print Test – Observation Survey (Clay, 2002).	Observations of children: <ul style="list-style-type: none"> - Handling and ‘reading’ books - Knowledge of book orientation - Knows directionality of print - Understands that print, not pictures, contains main meaning - Understands terminology such as ‘word’, letter, top of page, sentence, full stop, question mark, speech marks.
	Early Literacy Test – Stage 1 (Gillham, 2006).	Conversations / interviews with children and parents.
	Reading Progress Test – Phase 1 (Vincent & Crumpler, 1997).	Analysis of ‘writing’ samples – spaces between ‘words’, directionality, etc.
	PIPS – IAR classroom, IAR book	
Phonological Awareness	Dictation Test – Observation Survey (Clay, 2002) (This also assesses phonics knowledge).	Observation of children involved in phonological awareness activities: <ul style="list-style-type: none"> - Rhyming - Onset-Rime - Identification of initial sound - Identification of final sound - Identification of medial sound - Segmenting - Blending - Manipulation of sounds (deletion of phonemes, substitution of phonemes).
	Astronaut Invented Spelling Test (AIST) (Neilson, 2003a).	Assessing and Teaching Phonological Knowledge (Munro, 1998).
	Yopp-Singer Test of Phonological Awareness (Yopp, 1995).	Analysis of invented spellings – phonemes represented?
	Comprehensive Test of	

	Phonological Processing (Wagner, Torgeson, & Rashotte, 1999)	
	Sutherland Phonological Awareness Test – Revised (Neilson, 2003b).	
	Reading Progress Test – Phase 1 (Vincent & Crumpler, 1997).	
	PIPS – Repeating words, Rhyming words	
Letter names	Letter Names Test – Observation Survey (Clay, 2002).	Neale Analysis of Reading Ability informal diagnostic – letter names (Neale, 1999).
	Early Literacy Test – Letter names (Gillham, 2006).	Assessing and Teaching Phonological Knowledge (Munro, 1998).
	PIPS – Letters	Observation of children: <ul style="list-style-type: none"> - Naming of letters in books - Matching letters - Writing / drawing letters
Phonics	Dictation Test – Observation Survey (Clay, 2002). This assessment also assesses phonological awareness – segmenting.	Observation of children involved in the following activities: <ul style="list-style-type: none"> - Word sorts on basis of sounds/letters - Decoding when reading – analysis of errors / miscues - Teacher made ‘nonword’ tests
	Early Names Test (Mather, Sammons, & Schwartz, 2006).	Analysis of spelling.
	Nonword Reading Test (Martin & Pratt, 2001).	
	Word Recognition and Phonics Test (WRAPS) (Carver & Moseley, 2003)	
	PIPS – word attack screens	
Sight words	Clay Word Reading – Observation Survey (Clay, 2002).	Graded word lists such as those found in Informal Reading Inventories.
	Early Literacy Test (Gillham, 2006).	Teacher made word lists and flash cards.
	Ohio Word Test (in Clay, 2002).	Observation of children reading books – speed of word recognition (instant).
	Duncan Word Test (in Clay, 2002)	
	Word Recognition and	

	Phonics Test (WRAPS) (Carver & Moseley, 2003)	
Comprehension	Early Literacy Test (Gillham, 2006).	- Questioning - Retelling - Teacher made cloze
	Neale Analysis of Reading Ability (Neale, 1999). Yr 1+	Informal Reading Inventories e.g. Burns Roe (Burns & Roe, 1999).
	Reading Progress Test (Cloze) (Vincent & Crumpler, 1997). Yrs 2 and 3.	
	Progressive Reading Tests in Reading (PAT-R). (ACER, , 2001) Yr 3 +	
	PIPS – modified cloze	
Vocabulary	Peabody Picture Vocabulary Test (USA).	Observation of children: - Sorting words on the basis of meaning - Word matching activities - Finding synonyms and antonyms - Use of vocabulary in speaking activities
	British Picture Vocabulary Scale (Dunn, Dunn, Whetton, & Burley, 1997).	Progressive Reading Tests in Reading (ACER, 2001). Yr 3+
	PIPS PV kitchen, PV country, PV toy shop	
Fluency	Neale Analysis of Reading Ability (Neale, 1999). Yr 1+	Multidimensional Fluency Scale (Zutell & Rasinski, 1991).
		Running records – can record rate, accuracy and judge reading for meaning.
		Calculate words correct per minute (WCPM).
Motivation / Affective	Elementary Reading Attitude Survey (ERAS)(McKenna & Kear, 1990).	Observation of children’s reading choices and behaviours.
		Interviews with children / parents (see 1 st Steps materials for examples) (Annandale et al., 2004).

Appendix 3

Checklist of Questions to Guide Teachers' Assessment Choices

Assessment needs to be placed in the context of teaching and learning. According to the WA Curriculum Framework, a primary purpose of assessment is to enhance learning, promote positive outcomes for children and report children's achievement (Curriculum Council, 1998) Young children 'construct and review their understandings through interaction with others, direct and vicarious experiences and the use of their senses' (Curriculum Council, 1998, p. 29). Assessment is part of the teaching and learning process that builds on children's linguistic, social-emotional, spiritual, creative, physical and cognitive ways of knowing" (Curriculum Council, 1998, p. 29). Children are curious and represent experiences in a number of ways; therefore assessment needs to be continuous over time, dynamic, and ensure multiple viewpoints, and use multiple strategies or tools to build a comprehensive picture of children's growth.

Assessment strategies range along a continuum from formal to informal. Teachers decide on a range of strategies that will include families and, over time, provide knowledge of children's development in order to plan relevant and culturally inclusive programs. Initially, teachers will ask the following questions about assessment.

Assessment questions: (McAfee & Leong, 2002, p. 32; Puckett, 2000, p. 206).

- What are the purposes and goals?
- What will be assessed?
- How will emerging development of proficiency manifest itself?
- What strategies/techniques will be utilised?
- Who shall be involved?
- When and where will assessment take place?
- How will assessment data be recorded, assembled, accessed?
- Against what criteria shall outcomes be measured?
- How will information be interpreted?
- How will assessment data be used?

When these questions have been answered, teachers should review the assessment tool or strategy against the following criteria.