

<p style="text-align: center;">CHAPTER TWO</p> <p style="text-align: center;">LITERATURE STUDY</p>
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2.1 INTRODUCTION

2.1.1 Aims of this Chapter

This chapter examines problems experienced by educators in the assessment of children with severe disabilities and in particular children with LNFS. The issues of test accommodations as well as the validity of these test accommodations for this population group will be explored. The importance of the development of good literacy skills in typically developing children as well as their peer group who have LNFS and who use AAC strategies to express themselves will be stressed. The role of phonological or phonemic awareness and its assessment in relation to literacy development as well as the difficulties that often occur in emergent readers will be described. After this, alternate response modes, namely spoken and non-spoken response modes, will be identified to assess the phonological awareness of children with LNFS.

2.2 BACKGROUND

2.2.1 Assessment

Assessment is a vital procedure by which both data and information are gathered in order to make intervention and/or management decisions (Lloyd et al., 1997). The reasons for this are twofold: firstly, to obtain information regarding the children's strengths, weaknesses and learning styles and, secondly, to critically reflect on the effectiveness of the teaching strategies utilized in the classroom situation so that each

child can develop to his full potential within the curriculum (UNESCO, Open File on Inclusive Education, 2001).

Assessment, in the educational context, refers to the broad category of data collection, which, amongst others, includes portfolios, observations, interviews and testing. Classroom testing typically refers to pen and paper tasks by which an individual is required to answer multiple choice, forced choice (true or false) and/or open response (essay or paragraph) types of questions (Thurlow, Elliott & Ysseldyke, 2003).

The process of assessment presented a significant challenge to teachers throughout the last century (Wagner, 1994). While this issue has been minimized for typically developing children, it remains problematic for children with severe disabilities. The White Paper on an Integrated National Disability Strategy (INDS) (Office of the Deputy President, T.M. Mbeki, 1997) adds to this problem by highlighting the fact that there is a lack of reliable information available regarding the nature and prevalence of disability in South Africa. The INDS, however, states that a conservative estimate places this figure at 5% of the total population. Appropriate and accurate assessment that closely reflects the knowledge and abilities of the children is vitally important for both the children and their teachers in any schooling system. Because of the complex set of attributes within the child, the context and the material or task used during the assessment process, this results in assessment being deemed one of the several challenging aspects of the teachers' daily activities.

2.2.2 Assessment of Children with Little or No Functional Speech

On the whole, assessment of children who use AAC is even more challenging as they are a heterogeneous population (Light, 1988) presenting with an array of strengths and weaknesses which may include physical, fine-motor, language, learning, cognitive or visual impairments – or any combination of these simultaneously (Beukelman & Mirinda, 1998; Bedrosian, 1992). This may result in difficulties in determining the children's true level of functioning due to the lack of effective means

of communication (Goossens', 1989). Lloyd, Arvidson, Bennett and McLaughlin (2002) stress that in the assessment of both the potential and the capabilities of children with disabilities, it is necessary to firstly evaluate the input, processing and output needs of the child and, secondly, the input, processing and output of the task required. Pivotal to these two issues is the clarity of understanding of the influence that the altered or modified aspects of the assessment procedure has on the process of the input, processing and output of the assessment in its totality.

In the cases of children who use AAC, there are often significant disparities between the input and output modalities of language (Goossens' & Crain, 1987; Smith, 1996). The more severe the expressive difficulties of the individual learner, therefore, the greater the challenge in minimizing a mismatch between ability and performance because as Smith (1996) and Goossens' (1989) point out, despite having the capability of creating fairly complex utterances, individuals who use aided graphic representational systems or sets (GRS's) tend to produce output patterns which are significantly restricted in nature. Von Tetzchner et al.(1996) explain the issues around the input–output asymmetries in language development of children who use AAC. For children who can hear and understand spoken language, but who rely primarily on an AAC system for expressive language, the primary mode of reception is through the unaided aural modalities, while the primary mode of expression is not oral but either an aided graphic representational system or set (GRS), an unaided manual representational system or set (MRS), or, in many instances, a combination of both representational systems or sets.

This input–output mismatch can have either a superficial or a profound impact on the learning and assessment of the child who uses AAC. Unless timed responses, fine motor responses and/or spoken responses are minimized, the risk of discrimination against this population cohort remains extremely high (Lloyd et al., 2002; Thurlow et al., 2003; Wagner, 1994). This is even more significant in South Africa, because for so long children with LNFS and those who use AAC have been excluded from mainstream and specialized education. This has resulted in a conservative estimate of

more than 280 000 children with disabilities being marginalized, displaced and receiving no literacy training nor any formal education at all during their formative years (National Department of Education, 2001).

The sensitive and appropriate use of assessment and testing accommodations can, therefore, be a fitting course of action for increasing the relevant participation of children who had previously been excluded from the large-scale accountability assessments within the schooling system, and also to increase the possibility of valid and reliable test scores being obtained (Elliott, McKivitt & Kettler, 2002; Thurlow et al., 2003).

2.2.3 Assessment Reform in South Africa

Recent educational reform efforts endeavour to qualitatively and quantitatively alter the nature of teaching and learning so that *all* South African learners, including those with disabilities, whether children, youths or adults, develop to their full potential within all bands (i.e. from the Foundation Phase through to Band Eight) of the educational system (National Department of Education, 2001). This educational reform acknowledges the premise that all learners require support, and that the support necessary for the achievement of this goal should be provided whenever, wherever and to whoever is in need of such support. One of the barriers experienced by children with disabilities, which in the past has led to a large dropout rate or, more insidiously, to a large “push-out” rate, has been that of assessment (National Department of Education, 2001; Open File on Inclusive Education, 2001). But now that the Constitution of South Africa (Republic of South Africa, 1996) requires that the State provides basic education as well as adult education to all its citizens, including those with disabilities, there is an emergence of people with disabilities who are advancing within the educational system and are therefore required to participate in the assessment and accountability structures within the various bands.

Accountability refers to the system of collecting, analysing and using that information to hold individual schools, educators, Departments of Education as well as others responsible for the performance of the children and the education system in general. By this it is inferred that the education of children with disabilities should be embedded within the regular educational curriculum and standards (Thurlow et al., 2003). In order to achieve this, it is imperative to have standardized tests so that important skills can be measured as intended (Phillips, 1994).

Standardized tests dictate uniform procedures for administering and scoring of the measuring instruments (McMillan & Schumacher, 2001). Furthermore, according to Wagner (1994), they have been created for, and strictly standardized on a population of typically developing individuals, who are able to construct satisfactory spoken, written or volitional motor responses. While they remain a valid form of assessment in certain instances, for example exit levels from school, or in determining whether children can be promoted from one band of education to the next, they can act as barriers for children with disabilities. Therefore, a shift from standardized tests to more informal and, in some cases, individualised evaluation procedures used within the classroom, has subsequently been encouraged (UNESCO, Open File on Inclusive Education, 2001).

In an effort to redress past inequalities of the South African Educational system, the Education White Paper 6 (National Department of Education, 2001) has emphasized the implementation of an inclusive education and training system that identifies curricular and institutional barriers, and thereafter, how to remove them. The barriers to learning stated in this document are inaccessible environments, curricula, assessment, learning materials and instructional methodologies.

Of these, assessment remains an area that, according to Salend and Salend (1985) could, and still does, continue to pose as an obstacle to the successful performance of children with disabilities within the classroom context. It would be more satisfactory to develop tests with flexible and simple response requirements. This would decrease

the propensity to discriminate within the parameters of the tests' standardization. Appropriate accommodations in which the results will be influenced primarily by cognitive variables rather than by output modes should be developed (Thurlow et al., 2003; Wagner, 1994). It is therefore imperative that children with LNFS who use AAC be afforded multiple pathways for both learning and the assessment of that learning (Dalton, Tivnan, Riley, Rawson & Dias, 1995; Thurlow et al., 2003). Within these pathways, both the accommodations and modifications of the manner in which the work is presented to the children as well as the way in which it is assessed by the teachers should be guaranteed. Teachers can then obtain the necessary feedback from their students, which will indicate whether or not they have acquired the particular skill or whether more time should be spent on the concept in question (Arvidson, 2000; Thurlow et al., 2003).

2.3 TEST ACCOMMODATIONS, MODIFICATIONS AND ALTERNATE ASSESSMENT

To clarify any confusion with regard to the terminology used for this study, an explanation follows:

- i. Test accommodations, according to Thurlow et al. (2003), refer to the changes in testing materials or procedures that allow individuals with disabilities to undertake the assessments in a way that ensures that their abilities rather than their disabilities are assessed.
- ii. Test modifications on the other hand, are considered to be changes in the content of the test which leads to a change in what the test measures (Elliott, McKeivitt & Kettler, 2002).

- iii. Alternate assessment refers to those assessments which are provided to children who are unable to meaningfully participate in the regular assessment alongside their typically developing peers, despite having the opportunity or receiving test accommodations. These children often have different instructional goals, even though they are working towards the same content standards (Thurlow et al., 2003).

2.3.1 Test Accommodations

Test accommodations and modifications are highly complex procedures, especially when dealing with the population of individuals with moderate to severe disabilities. While much research is available for children diagnosed with learning disabilities, there is not much evidence to support the validity of test accommodations for learners with moderate to severe disabilities, (Grise, Beatie & Algozzine, 1982; Lloyd et al., 2002) and in particular for those learners who have LNFS and who use AAC to express themselves. Further, prior to the release of the Draft Guidelines for the Implementation of Inclusive Education (National Department of Education, 2002), procedures in South Africa regarding acceptable testing accommodations were sketchy and often perpetuated the continued disadvantage of children with disabilities.

The Draft Guidelines for the Implementation of Inclusive Education (National Department of Education, 2002) cite that adapted assessment refers to any change to either the standard criteria of the assessment or the conditions under which the assessment occurs in order to accommodate the functional differences of some children. The purpose here is to minimize the impact of the barriers upon the performance of the children, while simultaneously engaging them, in the same manner as the general education children, in the assessment and accountability programmes from which they had previously been excluded (Arvidson, 2000).

Four principles of assessment accommodations, as discussed in the Draft Guidelines for the Implementation of Inclusive Education (National Department of Education, 2002), should be adhered to. Firstly, the same academic requirements and standards should be applied to all children. The child receiving the test accommodation should not be granted any unfair advantage over his peer group. This implies that the standard of the assessment should not be lowered to accommodate the child with special educational needs. Secondly, these assessment accommodations are aimed at equalizing the opportunities for all learners by addressing the barriers to learning and not to provide them with any additional advantages over their peer group. Thirdly, these adaptations, modifications and accommodations should be put in place early on in the child's schooling career, and the child should be very familiar with the strategies and techniques afforded to him before any external examinations take place. Fourthly, test accommodations should be custom-made to the individual learner with a disability and not merely to the traditional category of the disability. In addition to these four points, Phillips (1994) emphasizes that it is imperative to ensure that the scores obtained with and without accommodations are equivalent. The question that needs to be answered is: "Do the test scores obtained from the accommodated administration of the test infer the same meaning as scores from the standard test administration?" In other words, does the integrity of the assessment remain intact?

According to Elliott, Kratochwill and Schulte (1998), testing accommodations refer to the *manner* in which tests are altered in either or both the administration of the test for the testee and/or the manner in which the testee *responds* to the items presented. Elliott et al., (1998), Grise et al., (1982) and Thurlow et al., (2003) proceed to state that these accommodations aim to compensate for the distortions in the learners' test results which may be linked to the nature of the disability and not to the intrinsic knowledge and ability of the learner. Thurlow, Ysseldyke and Silverstein (1995) add two factors in explaining test accommodations. These are: the *setting* of the test (which refers to the place where the testing occurs and whether the testing is conducted in a group or alone) and the *timing* of the test (which includes extended

time, more breaks during the testing process and extending the testing over a number of days or sessions). Thurlow et al., (2003) add *scheduling* (subtests in different order, specific time of day) and *other* accommodations, which do not fall into the above stated five categories. These would include special test preparation, alternative testing and out-of-level testing.

Of the six major types of changes that can be made, there is firstly, changes to testing setting; secondly, changes to the timing; thirdly, changes to the mode through which the testee responds; fourthly, changes to the presentation; fifthly, changes to the scheduling and sixthly, changes that do not fit into the aforementioned categories. There is very little research on the impact that these alternative response modes have on the performance of children who have LNFS. Although it is widely accepted and reported that teachers modify instructional and assessment materials to make them more accessible to the child with moderate to severe disabilities, the data on the acceptability of making these modifications remains limited (Arvidson, 2000; Lloyd et al., 2002).

One of the response accommodations used, but not yet validated by teachers of children with LNFS is that of eye-gaze. Eye-gaze communication is a skill that develops from early infancy. More sophisticated communication means replace eye-gaze as the typical infant matures. However, for children who fall along the disability continuum, gesture or natural speech may not become a viable option for effective communication. Therefore, eye-gaze frequently remains a viable avenue for communication exchange. The extent to which eye-gaze is used for communication will vary, depending on the physical needs of the individual. For some, eye-gaze techniques may be the primary means of communication and, for others, it may be used to supplement communication techniques (Goossens' & Crain, 1987).

Of the research available, Wagner (1994) reported that using a Yes/No response or binary communication has the potential for accurate communication of the inherent knowledge of the child. He cautions, however, that uncritical acceptance of answers

can in some instances lead to invalidating these results, especially since Siegelman, Budd, Spanhel and Schoenrock (1981) reported that individuals whose intelligence scores fall within the lower range of the intelligence quota continuum, tend to answer “Yes” under conditions of ambiguity.

In his research, Wagner (1994) queried whether assessment on the standardized form of the Peabody Picture Vocabulary Test–Revised (PPVT-R) (Dunn & Dunn, 1981) would render comparable scores when the test was administered in the binary communication mode. Twenty-five participants (fourteen male and eleven female) with a mean age of 28.8 (standard deviation [SD] = 7, range = 19–53) took part in the study. The IQ’s of the participants fell within the range of 24 to 98. All of the participants were assessed via the standard administration of the PPVT-R on Form M and the non-standard administration of the PPVT-R on Form L. The results of the standard administration provided a mean of 59.16 (SD = 19.13, range = 21–88), whereas for the adapted binary format administration, the mean was 56.36 (SD=19.15, range = 21–92). The Pearson Product Moment Correlation Coefficient between the two sets of results was significant, ($r[25] = .95, p < .001$). These results led him to the conclusion that the binary format was justified as a practical alternative to the standard PPVT–R administration.

Arvidson (2000) conducted a study to establish whether the performance of a test of multiple choice questions would render the same results if children used a scanning response mode as opposed to direct selection as a response mode on the Science and Technology Test from the 1999 Massachusetts Comprehensive Assessment System (MCAS). Forty-eight nine and ten year old children without disabilities in the Fourth Grade participated in the research. The findings indicated that neither unfair advantages nor unfair disadvantages occurred as a result of using the scanning mode of response as opposed to direct selection as a response mode. Phillips (1994) suggests that when considering whether a proposed test accommodation is valid or invalid, the assessor should carefully consider the purpose of the test, the skills to be evaluated and what inferences the assessor wants to make from the test score.

The validity of a measuring instrument is the degree to which the instrument measures what it claims to measure (Leedy & Omrod, 2001). McMillan and Schumacher (2001) refer to test validity as the degree to which inferences and uses deduced as a result of the test scores are reasonable and appropriate. “Validity is a judgement of the appropriateness of a measure for specific inferences, decisions, consequences or uses that result from the scores that are generated.” (McMillan & Schumacher, 2001, p.181). By this they infer that validity is specific to a situation: it is dependent on the reason for the test, the participants and the environmental factors in which the measurement takes place.

For the basic fairness requirements of any testing situation to be in place, it is important for the test to be valid for the purpose for which it is intended. This implies that any accommodation that seeks validity must ensure that such accommodations do not undermine the purpose for which the test was originally intended (Phillips, 1994). A clear understanding of the impact that the specific accommodation has on the assessment process is therefore imperative (Lloyd. et al., 2002; Thurlow et al., 1995; Wagner, 1994).

This is particularly true when endeavouring to assess literacy skills in children who have LNFS. Literacy, which Koppenhaver, Coleman, Steelman and Yoder (1992) refer to as reading and writing, is a highly complex process, which requires the synthesis of both visual and auditory information (Ellis & Large, 1987; Swank, 1994). While the literature acknowledges that both visual and auditory information impacts significantly on the successful acquisition of literacy skills, much debate in the literature still revolves around the degree to which each modality contributes to reading competencies and/or reading difficulties (Smith & Blischak, 1997).

2.4 LITERACY ISSUES: The Importance of Phonological Awareness.

Although a conservative estimate states that 5% of the South African population have a disability (White Paper on an Integrated National Disability Strategy, 1997), the prevalence of the population that is unable to communicate via spoken language is far higher in South Africa than in the rest of the world. In a study by Alant and Emmett (1995), 39% of children with severe mental retardation, in specialized education in the Pretoria area, were found to be non-speakers. Furthermore, the amount of time spent on literacy instruction in these schools was reported to be alarmingly low, with only 18% of the teachers indicating that they spent a “fair amount of time” on reading instruction, 4% indicating that they “mostly spent their day” on literacy instruction and 1% indicating that they spent “all the time” on reading instruction. The other 78%, that is, in excess of three-quarters of all the respondents participating in the study, reported that little or no time was spent on reading instruction during their daily classroom routine. Thus, one of the advantages of learning an alphabetic script, which, according to Hanley, Reynolds and Thomson (1997) provides children with the opportunity to correctly read words which they had previously not encountered, is to a large extent lost on this schooling cohort.

It is of vital importance for individuals with LNFS to develop good literacy skills in order to fully and independently interact with a wide range of communication partners on diverse topics and in various settings (Light & Kelford-Smith, 1993; Koppenhaver, 2000; Smith & Blischak, 1997). Without mature literacy skills, people with LNFS will be disadvantaged in that they will not be able to utilize many of the dedicated, sophisticated high, or low technological AAC systems, which are available and which can support educational, vocational and social experiences throughout the person’s lifespan (Foley & Pollatsek, 1999). Without the necessary literacy skills, people who use AAC will not be able to enrich their life experiences, nor will they be able to develop their conceptual potential to the full (Light & Kelford-Smith, 1993). Furthermore, Smith and Blischak (1997) point out that many people who are unable to speak, concomitantly have severe physical limitations. This, in turn, limits their job

choices as well as the job opportunities to those who require fair to good literacy skills in primarily office-type environments over the semi-skilled or unskilled jobs that primarily require only manual or physical skills.

In literate communities, 75–80% of the children who are taught reading skills will read in spite of the method of instruction (Swank, 1994). It is the 20–25% of children, and in particular those who have LNFS, and who are unable to read, that cause educators to speculate about different strategies for instruction. Thorstad (1991) suggests that educators need to pay more attention to what is being taught and then to reflect on the effect it has on the speed and efficiency of their children's literacy skills. The acquisition of mature literacy skills, however, is possible by individuals with LNFS (Blischak, 1994; Light & Kelford-Smith, 1993), despite the often irregularity of instruction in this area (Alant & Emmett, 1995; Beukelman & Mirenda, 1998) as well as the fact that English orthography is variant and less predictable than many languages. Yet it is well documented that people who have LNFS have much greater difficulties than their peers, although they have sufficient receptive language and intellectual ability, in developing the necessary skills essential for good reading ability (Beringer & Gans, 1986a; Beringer & Gans, 1986b; Smith & Blischak, 1997). Reading is a complex process, which requires the acquisition of a number of cognitive and linguistic abilities (Ellis & Large, 1987; Koppenhaver et al., 1992; Snow, Scarborough & Burns, 1999; Swank, 1994). The reading process places many complex cognitive demands on the reader, and it is thought that difficulties may arise from a number of sources and for different reasons (Beringer & Gans, 1986b; Ellis & Large, 1987). One cause of the problem, for instance, may be deficits in phonological awareness (Blachman, 1989; Blischak, 1994; Beukelman & Mirenda, 1998; Ellis & Large, 1987). Deficits in phonological awareness, which is sometimes referred to as phonemic awareness in the literature (Gilbertson & Bramlett, 1998; Smith & Blischak, 1997), arises due to a significant lack of awareness of the phonological structure of the spoken language (Beukelman & Mirenda, 1998; Beringer & Gans, 1986a; Koppenhaver & Yoder, 1992). This, in turn, makes it an extremely arduous task to learn the correspondence between the alphabetic letters on the printed page

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and the speech sounds that must be produced for these same letters to represent morphemes, words, phrases and sentences (Catts, 1989). Although this phenomenon can persist well into adulthood, Foley and Pollatsek (1999), Vandervelden and Siegel (1999) and Bishop and Robson (1989) point out that children with LNFS are able to acquire awareness of the sound structure of their spoken language, notwithstanding the severe limitations in their articulatory abilities. Phonological awareness includes many different abilities, which vary in degree of difficulty and present progressively and with higher levels of sophistication during the child's linguistic development (Dahlgren Sandberg & Hjelmquist, 1996).

As the inquiry into literacy proficiencies has developed, the responsibility of the 1960's concept of visual acuity (Hodson, 1994) as well as visual perceptual problems (such as visual figure ground, form constancy, visual discrimination, visual analysis and synthesis) as a causal agent for literacy difficulties has diminished, and the focus has shifted to investigating problems within the domain of language (Smith & Blischak, 1997). Of the three components of language, namely semantic processing, syntactic processing and the metalinguistic processing of phonological/phonemic awareness, Adams (1990) and Gillam and van Kleeck (1996) claim that there is overwhelming evidence that instruction in phonemic awareness is invaluable. This view is supported by Wagner, Torgesen and Rashotte (1994). They point out that the awareness of phonemes may assist in learning an alphabetic writing system such as English in which the letters of the text roughly correspond with the phonemes. Booth, Perfetti and MacWhinney (1999) support this claim: their study suggests that children make quick, automatic and general use of both orthographic and phonological information to identify text. Phonological information is activated early in the visual word recognition process and this activation occurs hand in hand with the orthographic activation. The implication here is that the lack of phonological awareness training can in fact significantly impede the acquisition of mature literacy skills. This is supported by Hanley, Reynolds and Thornton's (1997) comment that one of the primary differences between children diagnosed with developmental surface dyslexia and developmental phonological dyslexia seems to be that the

outcomes of surface dyslexics is less impaired with regard to phonological awareness tests than that of phonological dyslexics.

2.5 ISSUES IN PHONOLOGICAL AWARENESS

Wagner and Torgesen (1987) state that there are three phonological processing skills that have a causal relationship in the acquisition of mature reading skills. These are firstly, phonological awareness; secondly, phonological recoding in the identification of written words and, thirdly, phonological coding to maintain information in working memory. Felton and Wood (1989) as well as Wood and Felton (1994) consider these skills to be separate processes that are able to develop independently of each other. For the purpose of this study, only one of the three processing skills, namely that of phonological awareness, was examined.

Phonological awareness - which is sometimes referred to interchangeably in the literature as phonemic awareness (Gilberton & Bramlett, 1998; Smith & Blischak, 1997) - is the term used to describe the metalinguistic skill by which an individual has an explicit awareness of the phonological units within sentences, phrases and words (Bishop, Rankin & Miranda, 1994). Further, it is also described as the ability of the individual to manipulate the phonological units within words - especially, the phonemes (i.e. the smallest units of sounds) represented in an alphabetic orthography (Ball, 1994; Blachman, 1991; Blischak, 1994; Beukelman & Miranda, 1998). Phonological awareness can be subdivided into analysis and synthesis. Analysis refers to the ability to split - or break - up words and syllables into their smaller or smallest speech units and synthesis refers to the ability to blend or reconstruct these same small speech segments into syllables or words (Wagner, Torgesen, Rashotte, Hecht, Barker, Burgess, Donahue & Garon, 1997).

According to Adams (1990), the U.S. Office of Education (USOE) Cooperative Research Programme in First Grade Reading was undertaken between 1964 and 1967

under the direction of Guy L Bond and Robert Dykstra. Their analysis of the data collected indicated that the best predictor of the acquisition of reading in the Grade One year is letter name knowledge and the second best predictor of the acquisition of reading in the First Grade is the ability to discriminate between phonemes (those sounds that are smaller than a syllable and correspond roughly to individual letters). Adams (1990) goes on to point out that follow-up investigations have added to this finding, and that it is the awareness that phonemes exist as abstract components that can be manipulated, that is significant.

It is this knowledge of phonological awareness that facilitates the development of grapheme-phoneme correspondence (sound-symbol correspondence) in written word decoding, which leads to the development of reading. In order to use letters, children must develop a conscious access to phonemes. Furthermore, it is imperative to understand that speech in which the phonemes are co-articulated can be segmented into units that are represented in an alphabetic script (Blachman, 1991). Due to the abstractness of this concept, it is fair to say that phonological awareness develops slowly. When speech is analysed on a spectrograph, the three phonemes in the word “dog” will not be represented separately from each other in an acoustic signal, but instead will be merged together into one syllable. It is impossible to separate them without some acoustic distortion. It is for this reason that the actual sound of the phoneme can change slightly depending on the specific vowel or consonant with which it is co-articulated (Torgesen & Bryant, 1994).

Adams (1990) suggests that phonemic awareness skills do not develop spontaneously, but must rather be trained in the beginner reader. Specific instruction in phonological awareness has a positive impact on later reading achievement (Gillam & van Kleeck, 1996; Rivers & Lombardino, 1998; Swank, 1994), especially when letter names and sounds are combined with the instruction (Beukelman & Mirenda, 1998). Booth Perfetti and MacWhinney (1999) propose that in learning to read, the child must develop the orthographic form together with the already acquired phonological, semantic and syntactic information and that it is the utilization of letters as symbols

for the sounds in words that is vital to the reading process. Although the relationship between reading acquisition and phonological awareness appears to be one in which causation is bi-directional or reciprocal in nature (Rivers & Lombardino, 1998; Wagner, Torgesen & Rashotte, 1994), it appears as if the causal connection at the beginning stages of the reading process is strongest from phonological awareness to better reading skills (Stanovich, Cunningham & Cramer, 1984).

Wagner et al., (1997) state that in children whose phonological awareness is still in the developmental phase, certain characteristics can be observed. These are that the awareness of sounds becomes progressively more refined in relation to shorter and more abstract units of speech. Adams (1990) divided phonemic awareness into five different levels. These include at the most primitive level the knowledge of nursery rhymes. The second level involves tasks in which the child has to compare and contrast the sounds of words for rhyme or alliteration. Blending and syllable splitting are the skills required for the third level. The fourth level task involves analysis of words on demand. At the fifth level, the children should be able to manipulate the phonemes so that they are able to add, delete or move any given phoneme in order to regenerate a word. The first two levels are much more related to reading development than the 3rd, 4th and 5th (Ellis & Large, 1987). If educators are to provide effective literacy instruction to learners with LNFS, it is critical that they are able to assess each of the above-mentioned areas.

2.5.1 Phonological Awareness in Children with LNFS

Bishop and Robson (1989) describe the two routes to travel for the successful acquisition of spelling, namely, the direct and the indirect route. The former refers to when the orthographic specifications of the word is accessed directly from the lexicon, whereas the latter involves accessing a phonological representation and using knowledge about phoneme–grapheme correspondence to convert this to graphemes. The indirect route has the advantage in that it enables a speller to spell unfamiliar

words where no orthographic specification is available. In order to then be a proficient speller in English, an individual must build up a body of knowledge about specific orthographic characteristics about a specific word. While this knowledge is developing, children tend to rely heavily on the indirect route. The problem then posed is: “Is the articulation of an individual with disarthric or anarthric speech sufficient for the acquisition of and use of an articulatory code?” They found that it is not necessary to be able to be articulate in order to spell via the indirect route. They point out that while it is possible to work out grapheme–phoneme correspondences, people who are anarthric do have difficulties with spelling.

Vandervelden and Siegel (1999) investigated phonological processing in children with congenital speech impairments. They found that the AAC user and speech-impaired group performed significantly poorer in all areas of phonological processing, when compared to the control groups. However, although the AAC group scored lower than the controls, on the section of phonological awareness, the means were above chance for all measures, indicating that they have the ability to develop phonological awareness.

Dahlgren Sandberg (2001) conducted a longitudinal study on reading, spelling and phonological awareness abilities over three to four years. The results indicated that these children’s performance [as with the Vandervelden and Siegel (1999) study] were significantly lower in respect of reading and spelling than their speaking peers. However, the children in both groups performed almost equivalently on a test of phonological awareness.

The above studies indicate that although limited in expressive abilities the children with LNFS are able to develop phonological awareness skills. Phonological awareness assessment is vital in the cohort of children with LNFS so that the appropriate input is received by the individual.

2.5.2 Assessment of Phonological Awareness

The assessment of phonological awareness in the population of learners with LNFS is a problem for teachers. Koppenhaver et al., (1992) state that the limitations in research for literacy learning in individuals who use AAC is as a result of the focus being too narrow in nature. They suggest that it is necessary to focus on a broader model of literacy learning, which encompasses speaking, listening and AAC contexts, situational contexts and sociocultural contexts. They propose that poor development of phonological awareness may be the result of deficits in the listening/speaking contexts (e.g. school environments where sound play is absent), the situational context (e.g. lack of instruction), the sociocultural context (e.g. poor self-image) or a combination of factors. In the expansion of the AAC context, the child would more than likely be using a Graphic Representational System (GRS), rather than speech, during the emergent literacy period. McNaughton and Lindsay (1995) point out that a GRS, as an aided system or set, is accessed as a different entity, both motorically and cognitively, by the learner. This asymmetry in input and output places added processing requirements on the child, as he has to simultaneously assimilate one mode of communication and produce another (Von Tetzchner et al., 1996). Due to this factor, as well as the difficulties in separating the performance on the additional task requirements from demonstrating the skill at hand, Blischak (1994) urges that tasks which require the least adaptations be chosen when conducting assessments of phonological awareness for persons who use AAC. Moreover, cognizance needs to be taken of the phonological similarity effect as described by Conrad (1964). This is, that the ability to recall items, which are phonologically similar to each other, is disrupted when presented together in the same test.

It is for this reason that the study explored ways to accurately represent the innate knowledge of children with LNFS by the construction of a test that would establish whether spoken response modes would deliver equivalent results to non-spoken response modes in a Yes/No test of phonological awareness.

2.6 CONCLUSION

In the light of overwhelming evidence that the relationship between phonological awareness and reading ability is a robust one, it appears reasonable to identify the strengths and weaknesses of phonological awareness in Grade One children with LNFS, so that they may be afforded optimal opportunities through receiving the correct therapeutic and educational intervention. In order to achieve this, it is imperative to obtain empirical evidence that verifies that test accommodations using a spoken and a non-spoken response will in no way advantage nor disadvantage the child. An investigation of this nature will give educators a valid tool by which they will be able, based on the outcome of this investigation, to assess the phonological awareness skills of children who are unable to use spoken language as a medium through which to respond.

2.7 SUMMARY

This chapter highlighted the issues and the importance of assessment as well as assessment accommodations for individuals with LNFS. It looked at issues relating to test validity in order for the results to be deemed credible. It considered the importance of literacy development for children with LNFS. It focussed on the role that phonological awareness or phonemic awareness plays in the acquisition of mature literacy skills. Further, it explored reasons why test accommodations and modifications of assessments are necessary for the population of children with severe disabilities and with LNFS.