
PERFORMANCE SKILLS OF GRADE 1 LEARNERS: EDUCATORS' KNOWLEDGE AND ATTITUDE

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SUMMARY

South African children's performance in reading, numeracy and writing performance is well below expected levels. In the Quality Improvement, Development, Support and Upliftment Programme Baseline Study (QIDS-UP) conducted in the Free State in March 2008, the results for the Grade 3s in respect of literacy and numeracy were 43,32% and 38,24% respectively. There are a myriad of reasons why learners are unable to read and write, among which educators' knowledge and attitudes could be contributing factors.

A significant conceptual change to the Inclusive Education System is the early identification of learners with barriers, such as developmental delays, and the subsequent support of such learners. Developmental delays can become evident in writing, numeracy and reading deficits in scholastic tasks. Occupational therapists do not remediate the reading or writing delays, but assess a child to determine the underlying performance skills delays that cause the scholastic problem. Currently, there is only one occupational therapist working for the Free State Department of Education at the district level. An effective means of delivering occupational therapy services within this particular context would be to empower educators to identify, manage and support learners who demonstrate poor performance skills. This research attempted to determine educators' knowledge and attitudes regarding the age-appropriate performance skills of a typical Grade 1 learner.

This was a cross-sectional study involving a stratified, randomly selected sample of 48 of the 257 schools in the Motheo District. All the Grade 1 educators at the selected schools were requested to complete a questionnaire designed by the researcher. The questionnaire was developed by considering the age-appropriate performance skills that underlie the scholastic skills of a Grade 1 learner and further by extracting the associated Grade 1 outcomes from the National Curriculum Statement with which educators are familiar. This research focused on the following components: gross-motor, fine-motor and cognitive skills. Educators' attitudes regarding behavioural, cognitive and affective aspects were determined.

The sample comprised 117 educators of whom 47,3% had completed their training more than 20 years before. Only 18,8% had a four-year qualification, the minimum requirement for educators. The mean age of the participants was 46,6 years. The mean for Grade 1 teaching experience was 88 months, while the median for Foundation Phase teaching experience was 16,6 years. The mean number of learners per class was 42 (ranging between 21 and 67).

The medians of the total correct scores for knowledge regarding gross-motor skills, fine-motor skills and cognitive skills were 25,0%, 25% and 28,6% respectively. There were 2,6% who could not answer any questions correctly and 91,5 % of the educators scored below 46,7% on the composite knowledge score. The highest score (66,7%) was obtained by 2,6% of the educators.

Educators were found to have a generally positive attitude in respect of support to learners experiencing performance-skills delays (mean = 80,0%).

Relationships were determined between training, experience, knowledge and attitude. It was evident that as the number of years of training increased, so attitude improved ($p=0.0321$). No relationship was apparent between training and knowledge, nor between experience and knowledge or attitude.

The poor scores for the identification of motor and cognitive skills could indicate that educators will not be able to identify learners with barriers in their classes. The exceptionally positive attitudes found among educators could have resulted from this lack of knowledge, which, in turn, led to skewed perceptions regarding the demands of teaching learners with barriers and developmental delays.

These findings will guide the researcher to develop educator-friendly and purposeful training that will empower educators to identify and support learners who present with delays in development. The important role that the occupational therapist at the district level should play in supporting educators and learners to embrace inclusive practices was also emphasised.

Key words

Educators; knowledge; attitude; performance skills; gross-motor skills; fine-motor skills; cognitive skills; occupational therapy; Inclusive Education

OPSOMMING

Die lees-, skryf en gesyferdheidsvaardighede van Suid-Afrikaanse leerders is ver onder die vereiste standaard. Volgens 'n opname in 2008 – die “Quality Improvement, Development, Support and Upliftment Programme Baseline Study” (QIDS-UP) – was Graad 3-leerders in die Vrystaat se geletterdheids- en gesyferdheidsvaardighede onderskeidelik 43,32% en 38,24%. Daar is verskeie faktore wat bydra tot leerders se onvermoë om te kan lees en reken, waaronder onderwysers se kennis en houdings.

'n Belangrike konseptuele verandering na Inklusiewe Onderwys is die vroeë identifisering en hantering van leerders met leerhindernisse, soos ontwikkelingsagterstande, asook die ondersteuning van sodanige leerders. Ontwikkelingsagterstande kan manifesteer in agterstande ten opsigte van lees-, skryf- en rekenvaardighede. Arbeidsterapeute spreek nie die lees- en skryfagterstande aan nie, maar bepaal die onderliggende vaardigheidsgebreke wat aanleiding gee tot die leerder se swak skolastiese prestasie. Tans is daar net een arbeidsterapeut werksaam op die distriksvlak in die Vrystaatse Departement van Onderwys. Een van die doeltreffende wyses van dienslewering in hierdie konteks is om onderwysers te bemagtig om leerders wat probleme ondervind met die uitvoer van aktiwiteitsverrigtingsvaardighede te identifiseer en te ondersteun. Hierdie navorsing was daarop gemik om onderwysers se kennis van en houdings omtrent die ouderdomstoepaslike aktiwiteitsverrigtingvaardighede van 'n tipiese Graad 1-leerder te bepaal.

Hierdie dwarsnitstudie het 'n gestratifiseerde, ewekansig-geselekteerde groep van 48 van die 257 skole in die Motheo-distrik behels. Al die Graad 1-onderwysers van die geselekteerde skole is versoek om 'n vraelys – deur die navorser opgestel – te voltooi. Die vraelys is ontwikkel na aanleiding van 'n ondersoek van die onderliggende skolastiese/ontwikkelingsvaardighede van 'n tipiese Graad 1-leerder, asook die geassosieerde vaardighede soos beskryf in die Nasionale Kurrikulumverklaring waarmee onderwysers bekend is. Die volgende komponente is afgebaken: groot motoriese vaardighede, fyn motoriese vaardighede en kognitiewe vaardighede. Houding t.o.v. affektiewe, gedrag en kognitiewe response is bepaal.

Van die studiepopulasie van 117 het 47,3% van die onderwysers hul kwalifikasies meer as 20 jaar vantevore voltooi. Slegs 18,8% beskik oor 'n vier-jaar onderwyskwalifikasie – die minimum kwalifikasievereiste vir onderwysers. Die gemiddelde ouderdom van die deelnemers was 46,6 jaar, hulle het 'n gemiddeld van 88 maande ondervinding van Graad 1-onderwys gehad en die mediaan ten opsigte van onderrigervaring in grondslagfase-onderwys was 16,6 jaar. Die gemiddelde aantal leerders per klas was 42 (reikwydte 21 to 67).

Die mediaan vir die korrekte kennistotale ten opsigte van groot motoriese vaardighede, fyn motoriese vaardighede en kognitiewe vaardighede was onderskeidelik 25,0%, 25% en 28,6%. Daar was 2,6% van die onderwysers wat geen vroeë korrek beantwoord het nie en 91,5% van die

onderwysers het minder as 46,7% behaal met die berekening van die totale kennis. Die hoogste kennistelling was 66,7% en is behaal deur 2,6% van die onderwysers.

Onderwysers het 'n algemene positiewe houding geopenbaar in verband met die ondersteuning van leerders met agterstande ten opsigte van aktiwiteitsverrigtingsvaardighede (gemiddeld = 80,0%).

Verbande tussen opleiding, ondervinding, kennis en houdings is bepaal. Dit was opmerklik dat soos die aantal jare opleiding vermeerder het, het houding verbeter ($p=0.0321$). Geen verband is tussen opleiding en kennis of tussen ondervinding en kennis en houding bevind nie.

Die swak kennistellings kan 'n aanduiding wees dat onderwysers nie in staat/bekwaam is om tipiese agterstande by Graad 1-leerders te identifiseer nie. Onderwysers se uiters positiewe houding kan moontlik toegeskryf word aan hul verdraaide persepsies – vanweë gebrekkige kennis – van wat die eise van leerders met tipiese ontwikkelingsagterstande behels.

Die bevindings van hierdie studie kan 'n spesifieke bydrae lewer om die rol van die arbeidsterapeut op distriksvlak – soos die geval in hierdie studie – te definieer. Die bevindinge kan die navorser lei om gebruikersvriendelike en doelmatige opleiding te ontwikkel sodat onderwysers bemagtig kan word om leerders met agterstande te identifiseer en ondersteun.

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Concept clarification

Attitude – is a person's nature to react favourably or unfavourably to an object, behaviour, person, institution or event (Ajzen, 1993:41).

Barrier to learning – is an obstacle that prevents learning and development and ultimately prevents learners from accessing the curriculum (SA, 2005(a):13). For the purposes of this study a *learning barrier* is considered to be the result of a learner's inability to perform a performance component as appropriate for his/her age.

Developmental delay – is a delay in a child's physical, emotional, cognitive, behavioural and/or social development, as measured for a typical child (e-Notes, 2008).

District-based support teams (DBSTs) – are teams based at districts, which consist of occupational and speech therapists, psychologists, social workers and remedial educators. These officials provide the support at schools for educators to assist learners who are experiencing barriers to learning and development (SA, 2002(a):88).

Empowerment – is the process of increasing the capacity of an individual (or groups) to make informed choices. These choices will then be transformed into actions and outcomes. The actions will build on the individual's assets and improve efficiency (Worldbank, 2007).

Form constancy – the ability to recognise forms and shapes as being the same in various positions, sizes or orientations (Van Jaarsveld & Janse van Rensburg, 2009), e.g. a triangle stays a triangle even if it is inverted.

Foundation Phase – is the phase where learners from Grade R to Grade 3 are educated (SA, 2002(e):101).

Full-service schools – are schools that will be capacitated, equipped and supported to provide for the full range of learning needs among learners (SA, 2001:22). One full-service school was piloted in Motheo in 2004 (Maboloka).

Inclusive Education – refers to the educational model of the Department of Education. It entails the support of learners with low levels of support in mainstream schools (SA, 2001:15). In an inclusive programme, children with learning disabilities/delays are the shared responsibility of the class teachers, support professionals and the communities

(Karagiannis, Stainback & Stainback, 1997:3). Inclusion further differs from mainstreaming in that in *mainstreaming* the child must adapt to the school and the environment whereas in *inclusion*, the system must be able to accommodate the learner (SA, 2001:17).

Models of practice – is a set of concepts based on theoretical assumptions, one which guides the methodology and guidelines for intervention strategies. The predicted outcome is also based on the model of practice (Law, Missiuna, Pollock & Steward 2005:54).

National Curriculum Statement (NCS) – the policy statement that describes the expected outcomes and assessment standards of each learning area and each grade. This study used the mathematics and life orientation documents (SA, 2002(b) & (c)).

Numeracy – the term used alternatively to define mathematical concepts by the Department of Education. The outcomes as described in the National Curriculum (NCS) are (1) numbers, operations and relationships; (2) patterns, functions and algebra; (3) space and shape; (4) measurement; and (5) data handling (SA, 2002(b):6).

Occupational Performance – refers to actions in response to the demands of the environment and is the way in which a person interacts with his/her environment. It includes the desire, planning, recalling and carrying out of tasks/activities (Chapparo & Ranka, 1997:58). The areas of occupational performance are often categorised as: self maintenance, productivity (work/school), leisure and rest (AOTA, 2008:631-632; Chapparo & Ranka, 1997:58; Fisher, 2006:374). Although some literature argues that *occupation* and *activity* are two different things, for the purposes of this study, occupation encompasses activity.

Occupational therapists – are trained to assess and treat occupational performance problems using everyday occupations/tasks both creatively and therapeutically to achieve goals that are meaningful and relevant (CAOT, 2002:15; Duncan, 2006:6).

Occupational therapy – denotes the ability of a person to perform daily occupations. The aim of occupational therapy is to enable and empower a person to be competent and confident in the performance of their occupational tasks (including self-care, productive, scholastic and leisure tasks) so as to enhance well-being and minimise the effects of dysfunction or the impact the environment may have on dysfunction (CAOT, 2002:15; Duncan, 2006:6).

Ordinary (schools/classrooms) – the researcher uses the term *ordinary* rather than *mainstream* in that *mainstreaming* has a negative connotation. It was previously believed

that by placing a learner in mainstream, the learner would eventually 'fit' if the learner received extra support (SA, 2001:17).

Perception – the ability to recognise, differentiate and ascribe meaning to information received from the senses (Clark, 1985:276).

Performance skills (also called performance components in Australia's Occupational Performance Model) – are the characteristics, components and quality of a person's actions (AOTA, 2008:639; Chapparo & Ranka, 1997:1). Fisher (2006:374) describes performance skills as small, measurable actions, chained together to perform a meaningful task. Such skills can pertain to the following: sensory processes skills, motor skills, emotional regulation skills, cognitive processes skills, communicational skills and social skills (AOTA, 2008:639). For the purposes of this study, it will be considered that, to enable a person to perform a skill, the person is linking different components in order to perform a meaningful task. For this study the focus is on gross-motor, fine-motor and cognitive components.

Position in space and spatial relations – the ability to perceive and describe the relationship of an object to the self and to other objects (Clark, 1985:276), e.g. understanding and explaining: the book is on top of the table and I am standing next to the table.

Resource centre – is a special school that has specialised skills available within its staff and which is able to provide specialised support to learners with high levels of support need (SA, 2005(b):14).

Skill – is the ability, acquired through practice, to perform a task well (Pearsall, 1999:1344).

Tasks – is the combination of performance skills, body function and structure.

Theory – a set of facts, concepts and assumptions with which to describe structures and processes and relate them to each other or other events (Law, Missiuna, Pollock & Steward, 2005:54; Shumway-Cook & Woollacott, 2001:9).

LIST OF ACRONYMS AND ABBREVIATIONS

DoE	Department of Education
DBST	District-based support team
LSF	Learning-support facilitator
NCS	(Revised) National Curriculum Statement
SBST	School-based support team
WP 6	White Paper 6

CHAPTER 1

INTRODUCTION AND ORIENTATION

1.1 INTRODUCTION

The performance in reading, numeracy and writing of many South African children is well below expected levels. This has been reported in various national and international studies as described in Fleisch (2008:10-30). Although these 15 studies – conducted between 1998 and 2006 – used different measures to determine the levels of achievement, they all point to the fact that more than 50% of learners in South African primary schools have not mastered the basic benchmark for reading and numeracy (Fleisch, 2008:11). At the provincial level, the most recent research has been the Quality Improvement, Development, Support and Upliftment Programme (QIDS-UP), a survey developed and validated by the National Department of Education. In November 2007, it was administered to Grade 3s in the three Free State districts of Fezile Dabi, Lejweleputswa and Thabo Mofutsanyana. The results correspond to the above-mentioned results: the total average for literacy was 43,32%, while that for numeracy was 38,24% (DoE, 2008(a):7 & 19).

Developmental delays in learners can manifest in writing, numeracy and reading deficits (Palisano, 1989:92; Schneck, 2005:420) in scholastic tasks: the child cannot perform age-appropriate occupational tasks. Occupational therapists play an integral part in the identification and treatment of children who are experiencing barriers or delays in respect of performing occupational tasks (Dankert, Davies & Gavin, 2003:547, Dunn, 1990:312; Oliver, 1990:111). Occupational therapy differs from remedial education in that the occupational therapist does not remediate the reading or writing delay, but investigates to determine the underlying delay that causes the reading or writing problem (AOTA, 2008:639; CAOT, 2002:15). In this study, the researcher considered the

problems as identified by educators in the baseline assessment in the Free State Language of Learning and Teaching Project in 2008 (LLP, 2008:20), such as difficulty with letter formation and letter reversals. The problems identified by educators, which relate to aspects that occupational therapists address – such as letter and number reversals, letter formation or difficulty with sequencing – were extracted. The researcher analysed these problems to determine the underlying components that can potentially either cause or contribute to the occurrence of such scholastic problems. The problem of letter formation, for example, can result from poor postural control, immature pencil-grip, delays with fine-motor control or spatial problems (Cornhill & Case-Smith, 1996:737). The researcher thus limited her study to the typically developing Grade 1 learner's performance of gross-motor, fine-motor and cognitive skills that will influence a learner's scholastic performance. The researcher acknowledges that there are other contributing factors that can influence a learner's reading and writing ability, such as poor vision, low motivation, socio-economic circumstances or cultural differences – to name but a few. It was nevertheless decided to limit this research to the mentioned aspects because these aspects fall within an occupational therapist's frame of reference and can be addressed by such a professional. It is assumed that improved performance in these skills can intercept the delays in reading and writing.

In other countries, particularly the United States of America, Canada and Australia, the occupational therapist plays an important role in the identification and management of children within the educational system who are experiencing delays in occupational performance that may be due to physical, developmental or sensory challenges/delays (CAOT 2002:15; Niehues, Bundy, Mattingly & Lawlor, 1991:208). The relevant literature would seem to indicate that the interventions provided by occupational therapists in school settings entail providing recommendations (such as task adaptations), consultation (that focuses on empowering both educators and parents), and resources (such as writing aids) (Bayona, Mc Dougall, Tucker, Nichols & Mandich, 2006:104; CAOT, 2002:15; Case-Smith & Cable, 1996:41; Erhardt & Meade, 2005:208; Reid, Chiu, Sinclair, Wehrmann & Naseer, 2006:222). The approach of indirect support

through consultation and training coincides with the functions of the district based support teams (DBST) in the department of education (DoE). The White Paper 6 on Special Needs Education (SA, 2001) provides the framework on how the inclusive system is to be implemented in South Africa. One of the major changes to the inclusive system is the wider spread of support that will be in line with the need of the learner (SA, 2001:15). This means that learners with low-level support needs are to be supported in ordinary schools and those with moderate-level support needs in full-service schools, while learners with high-level support needs are to be supported in resource centres/special schools. It is envisaged that the DBSTs will render this support and that the team will consist of occupational therapists, speech therapists, psychologists, social workers and learning-support facilitators (SA, 2005(a):17). The core purpose and function of the DBST are described in the conceptual guidelines (SA, 2005(a):21-22): the support to educators, and specifically the school-based support teams (SBSTs), support to learners through consultancy with educators and direct support to learners where the said support did not address the learner's particular need. The SBST is the first port of support for a learner who is experiencing barriers to learning and development in a school. This team should consist of educators who can identify and respond to a variety of learners and institutional needs (SA, 2005(a):34). The SBST will request support from the DBST when this is required. Unfortunately, for various reasons, many posts in the Free State are not active, which contributes to the fact that there is currently only one occupational therapist working for the Department of Education at the district level. The most effective way for the OT to deliver a service in these circumstances will be to empower educators to identify, manage and support learners with poor performance skills, which could be contributing to their inability to read and write, thus preventing them from accessing the curriculum.

The need for this study was identified in Motheo District (see Addendum 1 for a map), since this is the area in which the researcher works. According to the most recent statistical survey, conducted in 2001, Motheo District is the largest district in the Free State and has a population of 728 261 and 176 480 school-age children, i.e. between 5 and 16 years (Stats SA, 2001).

The reasons why some children are not able to access the curriculum as educators currently present it are many and complex. On 30 September 2008, Ms Naledi Pandor, Minister of Education, named educator quality and educator ability as some of the challenges confronting Foundation Phase teaching (Pandor, 2008). Educators capacitated with knowledge tend to have a more positive attitude towards learners experiencing barriers to learning (Kuester, 2000); they are efficient; and, learners benefit from their knowledge (Goldharper, 2006:11; Hoy & Woolfolk, 1993:367; Minke, Bear, Deemer & Griffen, 1996). Another contributing factor to learners' performance is educators' attitudes. Elliott (2005) found educators' attitudes to be *the* determining factor in whether or not learners succeed in physical education. It has moreover been established that there is a positive correlation between educators' attitude and learner achievement in mathematics teaching in South Africa (Mwiria, 2006:95), in Australia (Schofield, 1981:468) and in schools in remote areas in Botswana (Pansiri, 2008).

A Grade 1 educator's knowledge of the typical age-appropriate performance skills of a Grade 1 learner will ensure not only early identification of delays but also early support. Such performance skills lay the foundation on which scholastic tasks such as reading and writing will develop (Case-Smith, 2002:23-24, Dunn, 1990:315). A positive attitude towards those learners who struggle to perform age-appropriate skills will enhance such learners' achievements (Elliott, 2005). Because both the levels of knowledge and the teachers' attitudes were unknown to the researcher, the research was conducted to determine the learning needs in respect of educators' knowledge and to ascertain their attitudes regarding the Grade 1 learners who have difficulty in performing age-appropriate performance skills.

One of the core functions of the DBST is to identify and support learning needs in the local context (SA, 2005(a):21-22). Training can be focused, specified and purposeful only if the learning needs have been scientifically identified. It is also believed that the attitudes of trained and empowered educators in respect of these learners with barriers to learning will become more positive and that they

will be more favourably disposed towards the inclusion and support of such learners in regular classrooms.

1.2 PROBLEM STATEMENT

The inability of South African learners to learn and attain the proposed level of reading, writing and numeracy skills – as defined by the National Curriculum Statement (NCS) – results from a myriad of complex and interconnecting factors. Through early identification of problem areas and delays in performance skills in learners, support can be provided from within the education system in the form of timeous interventions. This is only possible if educators are informed and knowledgeable about the appropriate performance skills of the Grade 1 learners and if they have a positive attitude towards learners experiencing barriers in performing appropriate performance skills.

The researcher decided to focus on specific motor- and cognitive-performance skills because of the correlation between these skills, the problems identified by educators (LLP, 2008:20) and the learning outcomes of Grade 1s as specified in the NCS (SA, 2002(b) & (c)).

If educators are able to identify the delays in the performance skills of the learners, the educators can either support the learner if they have the knowledge, or refer these learners for further assistance. It is assumed that learners who receive support will perform better in scholastic tasks such as reading and numeracy tasks.

This research was an attempt to determine the knowledge and attitudes of educators regarding the appropriate performance skills of a typical Grade 1 learner.

1.3 AIM AND OBJECTIVES

This research aimed to examine two factors: the educators' knowledge regarding the appropriate occupational-performance components of the Grade 1 learner, and educators' attitudes in respect of learners experiencing difficulty in occupational performance components. The following objectives were formulated:

- To obtain information about and to identify the gaps in Grade 1 educators' knowledge regarding Grade 1 learners' motor- and cognitive-performance skills.
- To obtain information regarding Grade 1 educators' attitudes towards Grade 1 learners who are experiencing difficulty in performing appropriate motor- and cognitive-performance skills.
- To establish relationships between educators' knowledge and their attitudes.
- To establish relationships between educators' experience, their training and their attitudes.
- To establish relationships between educators' experience, their training and their knowledge.

1.4 SCOPE OF STUDY

The decision to focus on Grade 1 learners was taken because of the acknowledged importance of early identification and intervention (SA, 2005(a):13). Various studies conducted in South Africa, reported in the local press (Blaine, 2007; Rademeyer, 2008(a), (b) & (c)) and meticulously tabulated by Fleisch (2008:5-6), have highlighted the fact that the lack of reading skills is more pronounced in learners who speak African languages. Recent results, announced on 30 September 2008 by Ms Naledi Pandor (2008), the then minister of education, also indicate a discrepancy between the results of the African-speaking Grade 3s and their Afrikaans- and English-speaking peers. African speakers obtained 26% in literacy, whereas Afrikaans- and English-speaking learners obtained 48% and 43% respectively; numeracy scores were 49% and 48% for Afrikaans- and English-speaking learners respectively and

22% for African-speaking learners. Because of the more pronounced delay in respect of reading and numeracy tasks in learners speaking an African language, the researcher wishes to focus specifically on this population. In future, programmes can be developed to alleviate the identified delays and assist the educators to support learners to improve reading and writing skills and to cope with the outcomes that are expected of them.

The NCS clearly describes the specific learning outcomes that a learner is expected to achieve in each grade. Educators should be knowledgeable about these outcomes because they continuously assess their learners. To determine which aspects correlate with the problem areas identified by educators (LLP, 2008:20), the researcher analysed the Grade 1 Curriculum Statement (SA, 2002 (b), (c) & (d)), to find the underlying occupational performance components that are often treated by occupational therapists. Related components that were found in Learning Outcomes 2, 3 and 5 in the Mathematics Curriculum Statement were cognitive components, form and space perception (SA, 2002(b):24, 26 & 30). Motor components were observed in Learning Outcome 4 of the Life Orientation Curriculum Statement (SA, 2002(c):22). It was thus decided to limit the research to the specified motor and cognitive components.

While gross-motor tasks refer to movements that involve the large muscle groups, fine-motor skills refer to movements of one's arms and hands that require a high degree of precision (Mauro, n.d.). In this study, it was decided to focus on general gross-motor tasks such as kicking a ball or hopping on one foot. When occupational therapists assess the ergonomic factors influencing writing, they will consider the learners' writing posture, upper extremity stability, hand mobility and pencil grip (Amundson, 2005:595). Since learners spend the greater part of their time at school, engaged in writing tasks, the researcher deemed it important to consider learners' seated posture. Other observable components, such as the effect of muscle tone and midline crossing, which can contribute to postural stability, were also included. A good posture is the foundation from which fine-motor skills can be efficiently executed, thereby enabling a child to concentrate on the tasks at hand (Shumway-Cook & Woollacott, 2001:193). Fine-

motor skills include grasping (for example, holding a crayon or brush), manipulating objects (such as clay, scissors, needles or pliers), and hand-eye co-ordinating (which include tasks such as writing, reading or cutting) (Mauro, n.d.). The acquisition of fine-motor skills is an important developmental milestone for a learner, since in pre-school, 36% to 66% of a day is spent on fine-motor tasks (Marr, Cermack, Cohen & Henderson, 2003:554), while in grades 2, 4 and 6 a learner spends 31% to 60% of the time on fine-motor activities (McHale & Cermack, 1992:901). Fine-motor tasks performed by learners in the school environment could include fastening their buttons or tying their shoelaces, doing art activities, cutting, glueing, drawing, colouring, toy manipulation (e.g. building with blocks) and writing the letters of the alphabet or numbers (Marr, Cermack, Cohen & Henderson, 2003:553). Aspects of fine-motor skills regarding which the researcher wanted to obtain information were those in respect of pencil grip, cutting with scissors and the drawing of shapes.

While authors use different classifications and definitions to categorise visual perceptual concepts (Gardner, 1996:8; Hammill, Pearson & Voress 1993:2), most authors agree on the demarcation of form and space perception (Schneck, 2005:416). This study has focused only on those aspects of form and space perception that relate to the outcomes as described in the NCS (SA, 2002(a) & (b)).

1.5 METHODOLOGY

This study was a cross-sectional study conducted at a stratified, randomly selected sample of 48 schools in the Motheo District. Educators were requested to complete a questionnaire designed by the researcher. The questionnaire was developed subsequent to a thorough study of the age-appropriate performance skills of Grade 1 learners and after the associated outcomes – with which educators are familiar – had been extracted from the NCS.

1.6 SIGNIFICANCE OF THE RESEARCH

An inclusive system is one that supports learners displaying mild learning barriers – which can be gross motor, fine motor or cognitive in nature – in the ordinary classroom (SA, 2001:15). Although the DoE has been advocating the concept of inclusion since early 2000, the researcher has found during school visits that educators are threatened by the idea of including learners who have barriers to learning in their classes. The proposed time frame for the implementation of the Inclusive Education and Training System was 2001 to 2003 (SA, 2001:42), but inclusion is still only partially implemented in pilot schools, which, in the Motheo District, amounts to only one resource centre and one full-service school. It is believed that with the more vigorous implementation of inclusion, more educators will be confronted with (the new concept of) accommodating – in ordinary classes – learners who have barriers to learning. The success of inclusion relies heavily on educators' knowledge (Kuester, 2000) and their positive attitudes towards inclusion (Mahat, 2008:90). Rogers (1983:71) acknowledges that by acquiring more knowledge attitudes will change and that this could lead to behaviour changes. Avramidis *et al.* (2000:201) confirm that positive and knowledgeable educators will be more inclined to embrace the challenge of learners who have mild learning barriers in classrooms. The researcher therefore considers that by means of determining the gaps in educators' knowledge and their attitudes, she will be able to focus on empowering them in respect of the identified aspects, which could contribute to more effective implementation of inclusive education practices.

This research will also assist towards defining the role, at the district level, of the occupational therapist in the Department of Education, since this is a newly created post. It can also potentially be a tool with which both to justify and negotiate for more occupational therapy posts. These results will further empower the occupational therapist to develop intervention programmes by means of which to support learners through indirect and direct support. In future, the effectiveness of the interventions can be measured against the results obtained here to add to evidence-based occupational therapy.

1.7 ETHICAL CONSIDERATIONS

The protocol of this study was presented to the Ethics Committee of the Faculty of Health Sciences at the University of the Free State. Once their permission had been obtained, (ETOVS 15/9), a request was addressed to the Directorate of Quality Assurance (DQA) of the Department of Education (Addendum 2) for permission to perform the study at schools in the Free State. Permission was granted subject to certain ethical conditions, such as the prerequisite that the participation of educators had to be voluntary. These conditions had however already been incorporated in the planning of the study (See Addendum 3 for letters from the DQA in respect of the *Registration of Research and Notification of Research Project* which had to be presented to participating schools). The DQA further requested that the findings and recommendations be presented to the Department. Permission was then obtained from the headmasters (Addendum 4) of specific schools to perform the study at their schools and informed consent was obtained from the participants (Addendum 5).

1.8 CHAPTER OUTLINE

After this chapter, **Chapter 1**, *Introduction and orientation*, which is introductory and serves to orientate the reader regarding the aim, purpose and basic methodology of the research, the rest of the chapters unfold as follows:

Chapter 2, *Literature review*, describes the literature that covered the key concepts around which the study is built, and is an exploration of local and international studies and trends.

Chapter 3, *Research design and methodology*, explains the research design and the method of data collection. The development of the measuring instrument, the study population and the sampling procedures are also described.

The *Results, presentations and discussion* are described and depicted in **Chapter 4**. The reader will be introduced to the sample profiles and the results are presented in tables and graphs. Main trends and patterns that emerged are

discussed. The results obtained are further described and summarised in this chapter.

In the final chapter, **Chapter 5**, entitled *Conclusion and recommendation*, the researcher discusses the main findings and relates the results obtained to the literature. The implications of this study's findings for occupational therapy in the DoE are explained and recommendations for further research are made.

1.9 CONCLUSION

This chapter aimed to introduce the reader to the backlog that South African learners are currently experiencing in reading and writing skills. It explained the valuable role that educators can play in the early identification and management of these delays and indicated that the occupational therapist decidedly has a role to play in supporting both educators and learners. The rationale for the specific research focus on the knowledge and the attitudes of educators was discussed and the use of motor and cognitive components was justified. It further clarified the scope of research and briefly described the methodology. The chapter concluded with an outline of the remainder of the dissertation.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter presents the literature that was reviewed. The literature review served to place the study in context, thereby providing the framework for the research. The demarcation of the researched aspects is explained and the role that these aspects play in the acquisition of scholastic skills is clarified by a discussion of a typical developing Grade 1 learner. Two aspects, namely educator's knowledge and their attitudes that may hamper a learner's education, are considered. The aim is thus to explain the interrelatedness of learners' occupational performance skills with their scholastic abilities and to consider aspects that may potentially contribute to poor scholastic performance. The final part of the chapter contains the conclusions reached and explains how the literature contributed to the development of this specific study.

2.2 PERFORMING OCCUPATIONS – OCCUPATIONAL THERAPISTS' DOMAIN OF CONCERN

2.2.1 OCCUPATIONAL PERFORMANCE AND PERFORMANCE SKILLS

Reed and Sanderson (1999: 10) define occupational therapy not only as the study of occupations in relation to health, satisfaction and well-being, but also as the management of skilled performance required to perform these occupations. The term *occupation* has different meanings and is not consistently used in occupational therapy (AOTA, 2008:629). Polatajko (2007:83) advocates that since *occupation* is the occupational therapist's domain of expertise and concern, the term should be used consistently not in the sense of the occupation of a country or of a persons' occupation, such as a builder, but that it should denote the everyday things that we do, such as eat, sleep and work. In the Occupational

Therapy Practice Framework: Domain and Process 2nd Edition (AOTA, 2008:629), *occupation* includes activity and will be considered as such by the researcher.

Occupational therapists consider all the occupations/activities in which a person might engage and these are commonly categorised as either self-maintenance, or productivity (work/school), or leisure or as rest (AOTA, 2008:631-632; Chapparo & Ranka, 1997:58; Fisher, 2006:374). To be able to perform an occupation, a person uses chains of actions, called performance skills (Fisher 2006:373-4). *Performance skills* are described and categorised in various ways (Chapparo & Ranka, 1997:58; Fisher, 2006:375). For the purposes of this study, the researcher used the Occupational Therapy Practice Framework 2nd edition (OTPF), the official document of the American Occupational Therapy Association (AOTA, 2008:625-683) as frame of reference. It suggests the following categories of performance skills: motor and praxis skills, sensory perceptual skills, emotional regulation skills, cognitive skills, and communication and social skills. If a person is skilled in the performance of a task it means he or she has the ability to do it well (Pearsall, 1999:1344). If a learner can perform a skill, he/she will thus be considered able to do it well or to demonstrate skill in the performance of that task. In other words, if a learner stands on one leg, he/she has the gross-motor performance skills of balancing on one leg. In analysing a task, such as when a learner writes his/her name, the performance skills needed to perform this task, bearing in mind the OTPF, is not only the grasping of the pencil (motor skills), the ability to know how hard to press on the pencil, (sensory skill) and knowing how to form letters and place them in appropriate sequence on a pre-determined line (cognitive skills), but also the foundation from which the action emanates – such as stabilising the body, being able to cross the midline or reaching to pick up and grasp a pencil (fine-motor components) (Amundson, 2005:595). In this study, the researcher took the skills to be those that are described in the OTPF (AOTA, 2008). The skills have however been limited to motor- and cognitive-performance skills. For the purposes of the questionnaire, the researcher selected skills that would be visually observable by the educator. Skills that form the basis or foundation from

which actions originate, such as maintaining a good posture, as well as end-of-the-chain actions, such as drawing shapes, were selected for the questionnaire. It is thus clear that proficiency in occupational performance, skills such as writing one's name or any other scholastic task, requires multiple sets of performance skills. The researcher aimed to include in the questionnaire skills appropriate to a typical developing Grade 1 learner.

All learners, like all other people, have unique abilities, characteristics and beliefs that reside within them that will influence their performance of skills (AOTA, 2008:630). The World Health Organization (WHO) has developed an International Classification of Functioning, Disability and Health (ICF) with which to describe both a person's functioning (or disability) and classify the contextual factors that support or restrict their functioning (WHO, 2001:7). The said classification comprises two parts: function/disability and contextual factors. The *contextual factors* that are able to influence people's ability to perform occupations can be their attitude, the environment or personal factors, such as age, training or religion. *Function* and *disability* refer to the person's participation in activities, such as mobility, mental and sensory functions. To put this study in context of the ICF: the knowledge assessed is the knowledge of the educators regarding activities and participation and included cognitive (mental) functions and motor functions (neuro-musculoskeletal and movement-related). Contextual factors that could influence the educator's knowledge or attitude that were included were aspects such as age, education and experience. Because of time and financial constraints, the scope of the study had to be limited to the contextual factors that were to be considered..

2.2.2 INTERVENTION: SKILLED ACTIONS BY OCCUPATIONAL THERAPISTS

Occupational therapists use different intervention approaches to assist a person (learner) to reach a state of well-being, to identify desires, and to be able to cope with the demands of the environment (AOTA, 2008:652). Intervention can assume the form of activity participation, consultation or education process, and/or advocacy (AOTA, 2008:654). Occupational therapists use purposeful activities to meet therapeutic goals (AOTA, 2008:653; Case-Smith, Richardson &

Schultz-Krohn, 2005:10; Punwar, 1988:9; Young & Quinn, 1992:160). The therapist will choose an activity that has a purpose or goal and is meaningful to the child. Through participation, children are provided with an opportunity to enhance their ability to execute performance skills and thereby enhance their performance of everyday occupations. To improve pencil grip the occupational therapist can, for instance, use (play) dough, where the learner is encouraged to roll it into small balls to improve muscle strength, to improve in-hand manipulatory skills, to provide sensory experience and to develop thumb-index opposition. Activities can also be adapted by simply placing the child in the front of the class to eliminate distractions. Consultation usually takes place when the occupational therapist uses her knowledge and expertise to identify problems and offer solutions (ATOA, 2008:654; Kielhofner, 1985:116; Punwar, 1988:182; Reed & Sanderson, 1999:370). The occupational therapist can, for example, recommend to the educator that the learner refrain from learning cursive writing because of motor-planning difficulties. The occupational therapist is however not directly responsible for the outcome, since the advice can be ignored. Through the education process information can be cascaded to improve the performance of activities (AOTA, 2008:654). Educators can be trained to manage sensory-seeking behaviour in the class. Advocacy is used when the problem is located external to the learner (McColl, 2003:181) and the occupational therapist assists the learner to make use of all possible resources in the environment to enable him/her to participate fully in daily tasks (ATOA, 2008:654). An example of advocacy is where the parents of a child with mild barriers (such as a Down syndrome child or a high-functioning learner on the autism spectrum) are informed about the school options open to their child. If they choose an ordinary school, the school, educators, parents and the learner will then be supported in order to assist the learner to participate fully in educational tasks.

In the planning of interventions, the occupational therapist can adopt any one of the following approaches: promoting health, restoring (rehabilitation), maintenance, modification (compensation) or prevention (AOTA, 2008:658). *Promoting health* is done by providing opportunities to enhance a

learner's/person's performance (AOTA, 2008:657) and it can include activities such as parenting classes. *Remedial activities* aim to bring about changes and avoid a learner from lagging further behind (McColl, 2003:5; Reed & Sanderson, 1999:390), such as when a learner in Grade 1 has not yet developed a 'writing' hand, intervention will be designed to establish hand dominance. *Compensation* is done when alternative strategies are used to overcome the problem (McColl, 2003:180): when a learner/client has a permanent nerve injury in the hand, the occupational therapist will explore splinting options to assist with grip. *Prevention* is an approach in which (further) disability is prevented in learners/clients either with or without current disabilities (AOTA, 2008:659). In a class situation prevention will be the provision of ergonomically appropriate tables and chairs to prevent back pain. Through *maintenance*, the learner/client's performance abilities are preserved by providing opportunities to participate in tasks/activities aimed at the maintenance of functions (AOTA, 2008:658). In a class situation maintenance can be done by visually displaying the daily programme (e.g. visual timetable), which will allow learners to know how the day will progress.

It is thus clear that occupational-therapy intervention for children focuses on the improvement of performance and on participation in occupations, which can range from participation in meaningful activities, through adapting activities, or providing assistive solutions, such as provision of a rubber tripod grip for a pencil to improve grasp, to an electric-powered wheelchair for mobility. Learners can also be indirectly supported by consultation with or advocacy to the educator, caregiver or to education personnel.

2.2.3 THEORY AND MODELS: THE FOUNDATION OF THERAPY

Occupational therapists use theory to understand humans and their occupations, to reason about and explain the underlying assumption on which intervention is based, and to predict change in occupations (McColl, 2003:1). Jules Henry Poincare (in Shumway-Cook & Woollacott, 2001:9) uses stones as a metaphor for the facts in theory which, when put together, can build a house. These same stones, however, can be put together in a different form to build different houses,

which means that the same facts can be put together to form different theories. To translate theory into practical expression that provides guidelines for the day-to-day delivery of occupational therapy service, models of practice, frames of references (FORs) and approaches have been formulated. Models can be either conceptual ones or practice ones: *conceptual models* aim to explain both why occupational therapists do what they do and why they are concerned with a person's occupation. FORs guide the therapist in developing conceptual models as the FORs form the basis on which assumptions and concepts/constructs develop from which eventually to describe the principles of the specific model. *Practice models* are used to guide the therapist to use theory to devise a plan of action to do assessment, intervention and use certain strategies (McColl, 2003:9; Reed, 1984:17; Reed & Sanderson 1999:201). It is thus clear that models and FORs draw heavily on theory not only to guide intervention strategies, but also to assess, and to predict the results of interventions (Law, Missiuna, Pollack & Stewart, 2005:54; Reed & Sanderson, 1999:199).

For this study, the researcher considered the following theories, models, FORs and approaches to provide a working hypothesis to explain function and dysfunction and to explain the rationale for focussing on/determining the specified areas:

Developmental FOR: This frame of reference focuses on the predicted developmental pattern in typical developing children, such as the fact that development of the tripod pencil grip will be preceded by a palmer grasp (Law, Missiuna, Pollack & Stewart, 2005:76). By means of this particular frame of reference sequential development can be explained and demonstrated to educators. The researcher is both aware of and has considered recent theories and models developed in occupational therapy, ones in which the strict hierarchy explanation has been replaced with a notion that development cannot be seen outside of the context that individuals are unique and that unique contextual factors influence their development. This is well described in the systems theory.

Systems theory: This theory considers all factors (environmental, child-related and occupational) that influence the performance of a specific task. Intervention

can be done by changing the environment, by an activity or learning the occupation, i.e. the entire occupation, not parts (Law, Missiuna, Pollack & Stewart, 2005:71) and the maturation of the nervous system is therefore not considered as important. This is in agreement with the inclusive education approach in which not only the learner is supported but also the system (whether the school, the teachers or the community), so that the full range of learning needs can be met (SA, 2001:19). When explaining systems theory, Shumway-Cook and Woollacott (2001:19-20) also stress the fact that clinicians should consider all aspects able to influence motor control – such as the nervous system, the joint structure, muscle strength, motivation and sensory information. In other words, the aim is thus to empower the child to perform the activity, and not either to change the developmental sequence or to improve the quality of the movement.

The neurodevelopmental FOR is based on the principle that postural tone, postural control, stability and mobility are required for the execution of well-controlled movements (Amundson, 2005:598; Reed & Sanderson, 1999:248). Although the assumptions may not easily be explained to educators, educators can be trained to perform activities, such as postural preparation for writing where learners can perform ‘push-ups’ in school chairs or any weight-bearing activities on the upper limbs to improve fluctuating postural tone, to enhance joint stability and to improve hand function and pencil grip.

Sensorimotor model of practice: The construct of this model relies on the provision of sensory opportunities to assist learners’ nervous systems to integrate information. (Amundson, 2005:602). The researcher, like other therapists (Oliver 1990:111; Schneck & Henderson, 1990:894), receives many referrals for assistance to learners who experience handwriting problems. Through multi-sensory intervention handwriting can be addressed. These intervention methods, such as a slanted writing surfaces or providing a variety of sensory experiences, can also easily be integrated in the curriculum and readily used in a class situation.

Occupational Therapy Practice Framework: Domain and Process 2nd ed.: (OTPF). This framework, which is neither a model nor a theory, is intended to “articulate occupational therapy’s contribution to promoting the **health** and **participation** of people, organizations and populations through **engagement** in **occupation**” (AOTA, 2008:625). This particular framework guided the researcher in the delineation and description of performance skills and in viewing these skills in the broader context of the learners’ world.

Biomechanical FOR: Biomechanics guides the therapist in understanding the influence of range of motion, strength and endurance on the learners’ ability to perform activities (Reed & Sanderson, 1999:248). It further guides the therapist in using appropriate sitting postures, the correct positioning of papers, and the usage and/or adaptation of writing tools (Amundson, 2005:604).

Acquisitional approach: Through this ‘teaching-learning’ approach learners practise the skill itself (not necessarily the underlying cause) through repetition (Amundson, 2005:600). Many remedial approaches and commercially available handwriting programmes are based on the underlying assumptions of this approach (Law, Missiuna, Pollack & Stewart, 2005:71).

The Wall model of Occupational Performance for children (WOP): One of the constructs of the WOP is that development evolves sequentially and higher-order abilities are built on lower-order abilities (Van Jaarsveld & Janse van Rensburg, 2009:4) It does however acknowledge individual differences and that the “bricks are theoretically aligned but not cast in stone”. These ‘bricks’ of development provide a visual, segmented and concrete way of describing development, delays and intervention strategies to educators. It allows for understanding how ‘bricks’ are dependent on one another and how they contribute to occupational performance. Occupational therapists in school settings rely heavily on educators and assistants to implement, maintain and monitor programmes. It is therefore important to describe and rationalise the intervention strategies to educators to get them to understand the reason for specific activities or modifications suggested (Amundson, 2005:598).

In the researcher's area of service, i.e. the Department of Education at the district level, the models and frames of references used are determined by the model of service delivery. The type of intervention mainly used by the researcher is consultation with teachers and caregivers to address change – either by means of implementing and monitoring programmes for learners or through training of educators and/or caregivers. Through previous experience with educators in the explanation of the rationale for certain intervention strategies, the researcher has found that practical, concrete methods that fall within the educators' frames of reference, are more easily understood and the strategies thus more readily accepted. It is on these premises – to use concrete methods – that the researcher selected the theoretical 'stones' on which this research was based.

2.2.4 OCCUPATIONAL THERAPY IN THE SCHOOL ENVIRONMENT

As mentioned, occupational therapists are concerned with peoples' ability to engage in daily occupations. In a school environment, the occupational therapist will aim to improve a learner's occupational performance in self-care, productivity and leisure so as ultimately to enhance the learner's quality of life (Reid, Chiu, Sinclair, Wehrmann & Naseer, 2006:226). To determine the underlying factors that hinder the learners' engagement in occupation (performing school tasks), the occupational therapist will observe and analyse the learner's performance skill (AOTA, 2008:639). Contributing barriers can be physical, sensory, cognitive, emotional, social or communicative barriers (AOTA, 2008:639). In the school setting, a learner's performance may be further hindered by social, attitudinal and cultural biases (Whalen, 2003:1).

In countries such as America, Canada or Australia, occupational therapists are employed by their respective departments of education (Bayona, Mc Dougall, Tucker, Nichols & Mandich, 2006:90, Case-Smith, 1997:136; DoE Au, 1999:a3:1). Schools are the second most common employment settings for occupational therapists in the United States of America (Punwar, 1994:151). In South Africa, the DoE has occupational therapy posts at specialised schools and at the district level in all provinces, but no school-based occupational therapists. The occupational therapists working at ordinary schools either practise as private

practitioners or are employed by the particular school. The conceptual guidelines for special schools (SA, 2005(b):9), describe that special schools will systematically move away from catering for homogeneous groups, such as learners who are blind or who have physical disabilities, and that they will rather provide support to any learner who needs high levels of support. The researcher works closely with special schools in the Motheo District and has observed that the special schools still cater for a group of learners having the same primary disability such as learners being deaf in Bartimea School or having intellectual disability in Pholoho School and Lettie Fouché School. Occupational therapists working here are thus highly skilled in delivering a service to these learners. Occupational therapists at the district level of the DoE support all ordinary schools, community centres, out-of-school learners and assist with all placements of learners in specialised schools (DoE, 2010(a)). Unfortunately there has, until recently, been a great disparity between the occupational therapists' salaries and those of other professionals appointed at the district level. This discrepancy contributed to very few occupational therapy posts being filled: only one occupational therapist has been appointed in the Free State since the post was created in April 2007. The researcher could not obtain the statistics regarding the number of therapists in other provinces. The occupational therapist at district level is part of the DBST, and one of the primary functions of the DBST is to support educators in identifying the learning needs and then to address these needs (SA, 2005(a):21). Since the researcher is the first district-level occupational therapist to be appointed in the Free State, she was initially unfamiliar with educators' baseline knowledge and therefore not sure how to present training and support. It is believed that the results obtained here will alert the researcher to the current needs of educators and that training can be developed around identified needs. As mentioned in Chapter 1, much of the literature (DoE Conn, 1999:49; SA, 2009(b):40; SA, 2001:58; UNESCO, 1994:32) supports the importance of early intervention. It was thus decided to focus on educators' knowledge and their attitudes regarding the performance skills of Grade 1 learners.

2.3 THE TYPICAL GRADE 1 LEARNER

23.1 INTRODUCTION

Development mostly follows a predetermined sequence from conception, right through a person's life (Nichols, 2005:278). This is a complex process in which many factors can play a role in the flow or disruption of the course of development. This section will describe only those skills that are typical of a Grade 1 learner. The emphasis will be on the components that are being considered in this study i.e. gross-, fine-motor and cognitive development.

2.3.2 MOTOR DEVELOPMENT

Gross-motor development relates to the usage of the body and it includes posture, balance and movement (Pollack, 1993:25). Development mainly takes place in a cephalo-caudal and proximo-distal fashion (Bukatko & Daehler, 2004:160; Pollack, 1993:25), which means that a child develops head control before he/she can sit. Fine-finger dexterity, which can be performed once the child has developed proximal stability and arm movements, is a refinement of proximo-distal development. Another pattern emerging in motor activity is differentiation – progressing from the general to the skilled and specific actions (Bukatko & Daehler, 2004:155; Pollack, 1993:25). The development of grasp can be used as an example: the child before six months has an involuntary grasp elicited by the traction response and grasp reflex; after six months the radial palmar grasp develops where the whole hand enfolds the object and the thumb is pressed laterally against the object. By nine months the child is able to hold large objects between the thumb and the radial fingers, but without intrinsic muscle control. Refinement takes place after nine months when objects are manipulated between the thumb and index finger. By the age of one year, grip will be further refined and the child will be able to have more control over intrinsic muscles and will be able to hold an item such as flat cracker (Exner, 2005:313). Clinically, differentiation can also be seen in other aspects, such as balance where the skill refines from general – being able to maintain balance in sitting – to skilled, such as balance reactions during pirouette or serving an ace.

In the compilation of the questionnaire, the researcher focussed on aspects about which educators should be knowledgeable. The aspects considered in the questionnaire are aspects that are, directly or indirectly, referred to in the NCS. The motor skills were delineated in gross-motor and fine-motor skills. In respect of gross-motor skills, questions were included on aspects such as gross-motor coordination, posture and midline crossing. In respect of fine-motor skills, questions were included on fine-motor components, such as pencil grip and copying. The researcher conducted an in-depth literature review to establish the theory that underpins these skills.

Posture and postural tone: Postural control is the ability to control the body in space whilst performing a task, through a complex interaction of muscles and nerves (Shumway-Cook & Woollacott, 2001:164). In the hierarchical model, postural control was thought to be determined by maturation of the nervous system and to develop in a cephalo-caudal and proximo-distal sequence (Clark, Coley, Allen & Schanzenbacher, 1985:144). Recent research suggests that both postural and motor development are closely linked and that the hierarchical model does not adequately explain why some babies will roll at four months and others at six months of age. It is suggested that there is an overlap in the emerging of cephalo-caudal control and that not all movements in small babies are attributable to reflexes (Nichols, 2005:278). It is specifically the dynamic systems theory that recognises the importance of muscle strength, sensory processing, cognition, environmental aspects and body mass on the development of postural control (Nichols, 2005: 278). There are various motor and sensory mechanisms that underlie the strategies that play a role in postural control (Shumway-Cook & Woollacott, 2001:167; Woodson, 2004:823). The motor strategies include alignment, muscle tone and postural tone. Sensory mechanisms include visual, somato-sensory and vestibular inputs (Nichols, 2005:287; Shumway-Cook & Woollacott, 2001:167-181). Muscle tone – the resistance to the elongation of muscles – is present in every conscious person (Shumway-Cook & Woollacott, 2001:169). When the body is maintained in an upright position against gravity, there is an increased level of muscle activity or muscle tone in the muscles that counteract the force of gravity, and this is known

as postural tone (Shumway-Cook & Woollacott, 2001:170). Professionals unfortunately mostly use the term muscle tone, when referring to postural tone. For purposes of the questionnaire the term *muscle tone* was used when actually referring to *postural tone* since it is the term with which educators are more familiar.

The sensory mechanisms that influence postural control are visual, vestibular and somato-sensory inputs. The visual system provides an image of the body in relation to objects in the visual field. Richardson, Atwater, Crowe & Deitz's study as referred to in Nichols (2005:288) does however indicate that, as children mature, the importance of the visual system decreases, while the dominance of somato-sensory systems takes over the control of balance in standing. Richardson *et al.*, mention the age of 13 when mature levels in static standing emerge and the visual system is no longer the dominant system. The vestibular system (together with the somato-sensory system) is the dominant source of information about position and movement for the brain (Nicholson, 2005:294; Shumway-Cook & Woollacott, 2001:181). Somato-sensory inputs are considered as the proprioceptive and cutaneous receptors that provide information regarding position of the limb in space and the characteristics of the surface (Nichols, 2005:287). The occupational therapist will therefore consider vision, vestibular and somato-sensory inputs when assessing postural control in Grade 1 learners. Although educators are not expected to be knowledgeable about the neuro-motor aspects regarding postural development, their ability in respect of early identification and intervention will decrease the possible impact that this delay might have on a learner's future development.

The development of sufficient postural control provides the foundation on which skilled action, such as the manipulation of writing utensils, is built. Delayed or immature postural control may constrain the child in the development of coordinated arm and hand movements (Shumway-Cook & Woollacott, 2001:193). Fluctuating postural tone, together with poor postural control, will impede the learner's ability to perform fine-motor activities (Amundson, 2005:598). In determining the learner's postural tone, the occupational therapist

will observe the learner's posture in various positions and also the movement patterns from one position to another. Learners with fluctuating postural tone tends to 'stick' to a body position, using other body parts or equipment to support their posture (Kurtz, 2007: 60). The researcher has also observed that in an attempt to gain proximal stability, that they may hook their feet around the legs of the chair, to 'stick' in preparation for writing tasks. For a learner to maintain this posture will require increased tension in the muscles, which will limit the range of movement. If poor pencil control resulting from fluctuating tone is added to this, the quality and quantity of writing output will be greatly impacted upon. It is thus clear that fluctuation in postural tone can influence writing in that tone influences the seated posture, proximal stability and/or the grip on the pencil (Amundson, 2005:598). It is therefore important, when learners are writing, to consider not only the writing product, but also to observe the learners' posture, postural stability and observe how writing takes place, i.e. whether it involves whole-arm movements or whether writing is performed by small, in-hand movements (Amundson, 2005:595). In supporting handwriting difficulties, the occupational therapist will address postural control and limb preparation, which could include modulation of muscle tone, improving proximal stability and development of pencil control (Amundson, 2004:598).

The researcher only considered a learner's seated posture. The researcher receives many referrals for support to learners with writing problems – an issue that is echoed in other research (Oliver, 1989:111; Schneck & Henderson, 1990:894). Learners mostly perform writing in school whilst seated. Educators were not expected to be knowledgeable about the aspects influencing postural control, but the researcher considered it in constructing the questionnaire. It should also be noted that the term *posture* was used in the questionnaire as it is a term with which educators are familiar. A good posture is described as a learner seated with the feet firmly and flat on the ground, the posture aligned symmetrically; appropriate table height is considered as the writing surface 5 cm above flexed elbows (Amundson, 2005:603).

Laterality and midline crossing: The tendency for certain processes to be handled more efficiently on one side of the body than on the other is the process of *lateralisation* and emanates from the internal awareness that the body consists of two sides (Clark, Florey & Clark, 1985:44; Schneck, 2005:420). When children are able to project laterality concepts outside themselves, only then can they understand, interpret and describe the relationship of objects to themselves: this is a very important developmental process in that it lays the foundation for the concept of *spatial organisation* (Schneck, 2005:420), which will be discussed further in Section 2.3.3. The ability to cross one's imaginary midline is a necessary component for mature lateralisation. Once a learner has developed hand preference (dominance) the learner will reach across his/her midline to the contra-lateral side to perform tasks in this space with the more dexterous hand (Bishop, 2005:363). Manual midline crossing improves with age in both pre-school and school-aged children and it is expected that a child of six to seven years should be able to cross his or her midline for efficient performance of skills such as drawing or writing (Bishop, 2005:363; Cermak, Quintero, & Cohen, 1980:318). Poorly developed midline crossing can also reflect in eye movements, such as when the learner loses track or eye movements become jerky when crossing the midline, which contributes to scholastic problems such as non-fluent reading (Kephart, 1977:92; Knickerbocker, 1980:58). Once a child can cross his or her midline, handedness develops further (Stephens & Clark, 1985:276). *Handedness*, or *hand dominance* or *preferred hand* are terms used interchangeably to signify that one hand is more reliable for use across a range of skilful tasks and that a specific hand is preferred for the performing of such skilful tasks. The preferred hand used for writing should be well established by seven years of age (Stephens & Clark, 1985:276), but handedness emerges much earlier and can be detected from the age of four (Cermak, Quintero, & Cohen, 1980:318). Once the child demonstrates hand preference, this hand will be utilised for more tasks and improved dexterity will result. Dexterity plays an important role in the development of more refined skills that are important in the school setting where there is a heavy demand in respect of fine-motor skills.

Fine-motor components: In a Grade 1 class, nearly all writing takes place with the child seated at a desk. Smith-Zuzovsky and Exner (2004:386) found children to have significantly better in-hand manipulatory skills when they were seated at desks and chairs that suited them. Pencil grip – the way in which the child holds the writing utensil – in typical developing children follows a predictable developing pattern (Tseng, 1998:212). Whereas 72,5% of children use the *dynamic tripod grip*, in which the pen rests against the distal phalanx on the radial side of the middle finger, while the pads of the thumb and the index finger control the pen (Schneck & Henderson, 1990:898), the lateral tripod is used by 22,5%. The *lateral tripod grip* is when the pen rests against the middle phalanx of the middle finger and is controlled by the pad of the index finger, but the thumb is extended and presses against the pencil at the distal phalangeal joint. The relationship between poor pencil grip and handwriting problems has already been established in a study involving a group of Grade 1s (Schneck, 1991:704). Pencil grip is thus an important prerequisite for writing. Educators' knowledge regarding appropriate pencil grip and appropriate seating was assessed by means of photographs.

The development of scissors skills follows after the child has mastered controlling a pencil. Folio and Fewell (in Exner, 2005:319) explain the developmental path: children snip with scissors at two years of age; by two-and-a-half years, children can cut across a six-inch strip of paper; by three to three-and-a-half years of age they are able to cut along a six-inch line; by three-and-a-half to four years, a child is able to cut a circle; and by four-and-a-half to five years a child can cut a square. Stephens and Clark (1985:280) however describe a slightly different age-appropriate skills acquiring trajectory. The main difference however lies in the child's ability to cut a circle. Whereas Stephens and Clark describe the cutting of a circle last, stating that this is only achieved at the age of five, Folio and Fewell describe the ability to cut a circle as preceding the ability to cut a square. This apparent discrepancy in skills development supports the systems theory, namely that motor (and postural) control emerges from an interaction between the environment and the systems of the body (Nichols, 2005:278). The researcher however experienced a discrepancy between the

expected skills observed in the population with which she works and the sequence described by both authors. This can be a consequence of limited exposure to scissors-use both at home and in the classroom. Considering the availability of equipment as portrayed in Table 2.1, the researcher doubts that Grade R and Grade 1 learners have sufficient access to scissors to practise cutting. Considering the above, the researcher nevertheless believes it is reasonable to expect a Grade 1 learner to be able to cut out a circle drawn on a paper.

Cutting is a bilateral task in which each hand performs separate actions. This is possible because the child has developed an internal awareness that the body consists of two sides that are able to work separately. From this internal awareness, the child then learns to name the sides 'left' and 'right'. By the age of six to seven the child's awareness of left and right on his/her body has already been established and only after seven years does the child associate spatial concepts without relating them to his/her own body (Schneck, 2005:420). At this stage a Grade 1 learner can be expected to be able to identify left and right on him- or herself, but not on another person.

Age-appropriate skills for Grade 1 learners: Children may attend school from the age of five-and-a-half years, and they can be exempted from attending school if considered not school ready and need then only attend school when they are eight years of age (DoE, 1996:4(i)). The researcher took the Grade 1 age to lie broadly between six and seven years old, because this is the age at which the child is supposed to be attending school and the curriculum requirements are built on this age. There are various formal and standardised assessments available for assessing children in this age band, such as Bruiniks-Oserersky, the Peabody Developmental Scale or the Gross-motor Function Measure to evaluate typical development (Nichols, 2005:291). These mentioned formal tests have been standardised on an American or Eurocentric population. The researcher is only aware of one locally standardised test, that by Herbst (2006) who developed and standardised the Early Childhood Development Criteria (ECDC) that measures the gross-motor, fine-motor and cognitive skills of children

between 40 and 70 months of age. It was standardised on a local population and has separate norms for educationally deprived children. The researcher included various local standardized and non standardized assessment and screening instruments to determine age-appropriate performance, such as the Clinical Observations of Gross-motor Items of the South Africa Institute of Sensory Integration (SAISI, 2003) and the Developmental Profile of the University of the Witwatersrand, compiled by Steward-Lord (2005), Herbst's local study (2006), and those of Beery and Beery (2006), WOP (Van Jaarsveld & Janse van Rensburg, 2009) and Exner (2005). The typical motor skills of a Grade 1 (six to seven years old) can be said to encompass the following:

- Stand balanced on one leg for 15 seconds.
- Kick a stationary ball into the air.
- Climb steps by alternating the feet.
- Catch a tennis ball with two hands, while performance is erratic when using only the dominant hand.
- Skip smoothly, rhythmically and in an integrated fashion.
- Able to jump 30 cm high and 80 cm far.
- Hop on one foot, demonstrating good control and not using much arm movement.
- Demonstrate hand dominance.
- Able to follow an object smoothly with the eyes only, while the head remains still.
- Complete many self-care tasks independently, such as simple dressing, toileting, fastening buttons, threading and tying shoe laces.
- Use some form of tripod pencil grasp.
- Cut around reasonably complex designs with a combination of straight and curved lines and corners, with less than 1 cm deviation from the set lines.
- Thumb touches each finger within five seconds.
- Fold a paper square into a triangle.
- Able to copy a circle, cross, triangle, square, a rectangle and a recognisable picture of a person and a house.
- Thread eight beads in 25 seconds.

In the literature there seems to be consensus about the age-appropriate ability of copying basic shapes, such as a triangle, circle and cross (Beery & Beery, 2006:45, Pollack, 1993:254; Steward-Lord, 2005). There however seems to be disagreement regarding the age at which a learner should be able to copy a diamond: according to Pollack (1993) and Steward-Lord (2005), it is six years, while Gesell (in Stephens & Clark, 1985:277) mentions seven years and Beery and Beery (2006) hold that it is eight years and one month. The researcher decided to use Beery & Beery's age equivalent (2006:59) to determine the appropriate age for copying geometric shapes because of the scientific method they applied to obtain the standardisation.

2.3.3 COGNITIVE DEVELOPMENT

Cognition develops in an orderly sequence of stages and involves thought processes, attention, memory, concept formation and problem solving (Bukatko & Daehler, 2004:271). Piaget (1896-1980) developed a theory for cognitive development that is still used as a foundation in child development studies (Bukatko & Daehler, 2004:271; Law, Missiuna, Pollock & Steward, 2005:60; Pollack, 1993:13). According to Piaget, children from six to eleven years are considered to fall into the concrete operational stage. During this stage the children's cognitive abilities have developed to such an extent that they are able to perform mental actions, such as the grouping and classification of objects or seriate objects from the shortest to longest (Bukatko & Daehler, 2004:276; Clark, Florey & Clark, 1985:28). A child at this age will, for example, be able to realise that the red and the blue triangle are identical in shape, but that the red triangle and the red square share the same colour properties. It is thus clear that cognition enables learners to interpret and assign meaning to visual stimuli.

Zaba (in Schneck, 2005:412) defines *visual perception* as the total process responsible for the reception (through our sensory functions) and cognition (the interpretation through specific mental functions) of visual stimuli. Visual perceptual skills empower the individual to be able to recognise the shape and colour of objects and allow a person to make accurate judgements regarding the size and spatial orientation of such objects (Schneck, 2005:412). One of the

major factors predicting readiness in Grade 1 learners is their ability to process visual-perceptual-motor information (Schneck, 2005:420). Occupational therapists often address visual-perceptual delays in learners because of the correlation between improvement in visual-perceptual skills and improvement in scholastic performance (Palisano, 1989:92). For the purposes of this study, the researcher focused on the development of form and space perception because these are aspects that are included in the NCS.

Form (object) perception allows a person to develop stability and consistency of the visual stimuli received (Schneck, 2005:416; Stephens & Clark, 1985:277; Van Jaarsveld & Janse van Rensburg, 2009). This ability enables one to make assumptions regarding the object regardless of size, orientation or position. Children with form-constancy delays will have difficulty in recognising shapes presented in different sizes or orientated differently in space (Schneck, 2005:423; Stephens & Clark, 1985:277). These children may be unable to perceive two triangles – one presented with a flat base and one standing on one corner – as being the same shape. A Grade 1 learner, in the concrete operational stage, is expected to have the ability to organise and classify perceptual experiences for meaningful cognitive operations, such as identifying and naming three-dimensional and two-dimensional shapes, such as circles, diamonds or triangles (SA, 2002(b):26). Difficulty in recognising written work presented in different styles or to recognise a transition from print to cursive are some of the difficulties with which Grade 1 learners who have poorly developed form perception may present (Schneck, 2005:423; Stephens & Clark, 1985:277).

Spatial perception is the ability to determine the spatial relationship of an object in relation to oneself or to other forms and objects in space (Schneck, 2005:416). Once, by age seven, a child has developed an awareness of his/her own body, the child can then project laterality concepts outside him/herself (Schneck, 2005:420). For reading and writing, learners must be able to apply the spatial concepts in relation to themselves and then transfer the knowledge to symbols, letters and words on a two-dimensional level (Schneck, 2005:421). This perceptual ability includes the understanding of directional language, such as

under, on top of, left and right. Delays or barriers in spatial perception can be seen in school work: learners will reverse letters, words or numbers and use poor spacing in planning drawing and writing activities (Knickerbocker, 1980:59; Schneck, 2005:416; Stephens & Clark, 1985:276). According to Ilg and Ames (in Schneck, 2005:420), discrimination between 'b', 'd', 'p' and 'q' can in some learners mature only at around seven years of age. In Grade 1, a learner should be able to understand, interpret and respond appropriately to verbal commands such as *on top of, underneath* or *next to* (SA, 2002(b); Steward-Lord, 2005).

Attention and hyperactivity

Although these terms cannot be categorised under gross-motor, fine-motor or cognitive skills, the researcher wanted to determine the educators' knowledge regarding these terms because of the co-morbidity of motor and learning difficulties that often exists in conjunction with attention-deficit hyperactive disorder (Meyer & Sagvolden, 2006; Taylor *et al.*, 2004). Short attention span may be due to a delay in neurodevelopment or it can be inherited, but may also result from delays in visual and auditory perceptual skills (Schaefer & Millman, 1983:19-20). Such learners will be visually (or auditorily) confused by the stimuli reaching the brain because the brain is unable to interpret the sensory information correctly or able to focus on the relevant stimuli in the environment. Knowledge regarding the typical Grade 1 learner's attention span and activity level and the identification of deficit in attention and hyperactivity will empower educators to seek support and to handle these learners appropriately. Literature describes the prevalence of attention deficit hyperactive disorder (ADHD) in school-going children in South Africa as being between 3% and 10% (Kokot, 2006:142; Taylor *et al.*, 2004:13; Van der Walt, 2000:47). It is therefore only to be expected that educators will be confronted with these learners in their classes.

All of the above-mentioned aspects, as well as the local screening instruments, the Developmental Profile of the University of the Witwatersrand, compiled by Steward-Lord (2005) and also the Wall Model (Van Jaarsveld & Janse van

Rensburg, 2009) were used in conjunction with the curriculum expectations as described in the NCS (SA, 2002(b) & (c)) to determine age-appropriate performance of cognitive skills. The typical cognitive skills of a Grade 1 (between six and seven years old) can be described as follows:

- Build a 10-piece puzzle.
- Sort and name 10 colours.
- Sort and name shapes: circle, square, triangle, oval, diamond, star, semicircle and rectangle.
- Point out and name common body parts and detail such as elbows and eyelashes.
- Know spatial concepts such as *on top*, *underneath* and *next to*.
- Identify left and right on self.
- Correctly indicate left or right hand of educator.

2.3.4 CURRICULUM EXPECTATIONS

Before discussing the outcomes that are expected of a Grade 1 learner, we first turn to a consideration of the resources available to the educator to execute the curriculum. Table 2.1 describes the availability of resources in South Africa for Grade 6 learners' classroom (SACMEQ, 2005:122). These statistics are the only available information regarding classroom resources for schools in South Africa. The researcher, in that she regularly visits schools, considers this information also to be descriptive of a typical Grade 1 classroom. The SACMEQ II 2005 review, carried out in conjunction with UNESCO, also revealed that there was an average of 1,3 books available in the classroom to every Grade 6 learner, while in two provinces no books were available (SACMEQ, 2005:123). Although no research was found regarding the relationship between resources and learner performance, the researcher agrees with Monyooe (2005:14) that, when teachers and learners find themselves in an underresourced environment, they easily lose confidence in the system; it demotivates the educators, and encumbers the implementation of the curriculum. It is further relevant to the occupational therapist at the district level in the DoE, in that support offered to educators and learners often relies on additional resources or equipment. The

intervention for a learner with poor co-ordination will, for example, include the use of old newspapers and home-made clay. Educators who do not have the basic classroom equipment, may find even this basic extra equipment to be a tall order.

Table 2.1: Classroom resources

Classroom resources	% available
A usable writing board	97,5
Chalk	99
A wall chart of any kind	84.2
A cupboard	69
One or more bookshelves	37,3
An educator table	86,8
An educator chair	84.8

Source: SACMEQ II, 2005

Another factor influencing the implementation of the curriculum is the class room size relative to the number of learners in the class. Phurutse (2000) mentions Howie's 2001 study, which found South Africa to have an average of 49 learners per class, while the poorer schools had 59 learners on average and that the ratio even went up to 65 learners to a classroom. South African and African studies, such as those by Van den Berg (2005) and O'Sullivan (2006:26) could not determine whether class size impacted on learner achievement. An international study that monitored the performance over a four-year period of learners with reduced class sizes reported an increase of 3% in the learners who scored above the national mean in mathematics tests. This 3% constituted approximately 15 000 learners (Bohrnstedt & Stecher, 2002:34/5). What was even more comforting was that teachers of reduced-size classes were more likely to say that they knew the learners better, they knew what they could do, could offer individual attention and meet the needs as described or displayed by the learners (Bohrnstedt & Stecher, 2002:44). It would then seem that although there is no consensus regarding whether smaller class size results in improved

learner performance there nevertheless seem to be qualitative advantages attached to having smaller class size.

In South Africa, the outcomes expected of each grade for each learning area are clearly stipulated in the National Curriculum Statement Grades R–9 (schools) Policy (NCS). The assessment standards describe the minimum level, depth and breadth of what a learner should learn. These standards are grade specific and embody the knowledge, skills and values required to achieve the learning outcomes (SA, 2002(b), (c) & (d)). The assessment standard or learning outcomes do not prescribe a method, but “leave considerable room for creativity and innovation on the part of teachers in interpreting what and how to teach” (SA, 2002(e):4). There are eight learning areas in the NCS. A *learning area* is a field of knowledge, skills and values, which has unique features and should be integrated with other learning areas (SA, 2002(b):102). The learning areas are: languages, mathematics, life orientation, natural sciences, technology, social sciences, arts and culture, and economic and management. The Grade 1 learner is assessed on only three learning areas, namely, language, mathematics and life orientation. The learning outcomes as described in the other learning areas (such as in natural sciences or technology) should be incorporated in the tasks of these three learning areas. For example the knowledge of the national flag, a learning outcome of social science can be incorporated in the mathematics Learning Area Three where the learner has to identify shapes, colours and spatial orientation.

The learning outcomes for language are intended to ensure that learners are able to listen, speak, read and view, write, think and reason, understand and use language structure to interpret texts (SA, 2002(d)). Mathematics outcomes are focused on developing knowledge, understanding and skill in numbers, operations and relationships; patterns, functions and algebra; space and shape; measurement and data-handling (SA, 2002(b)). Through life orientation the learners should develop skills, values, knowledge and attitudes to assist them in making informed decisions regarding health promotion, orientation to the world of work, and social, personal and physical development (SA, 2002(c)).

In determining the aspects that interlink with occupational performance, the researcher considered not only the skills/abilities of a typical Grade 1 learner, and the outcomes as described in the NCS (SA, 2002(b) & (c)), but also problems reported by educators (LLP, 2008:20). For example, Grade 1 learners should be able to have a well-developed pencil grip and be able to copy shapes – such as a circle, square and triangle. These are aspects occupational therapists usually include in their assessment (Steward-Lord, 2005; Van Jaarsveld & Janse van Rensburg, 2009); these aspects are also incorporated in the NCS in the Mathematics Policy (SA, 2002(b):24), which stipulates that learners must be able to copy patterns. Delays in respect of these aspects (poor fine-motor coordination and mechanics of writing) were identified and reported by the Language Learning and Support Project (LLP, 2008). In Chapter 3, a schematic representation depicts how these aspects interlink and so as eventually to form a basis for the variables that were determined (see Figure 3.1).

2.4 TEACHING AND KNOWING

2.4.1 INTRODUCTION

Regarding learners' poor performance in reading and maths ability, authorities should be equally as concerned about learners' knowledge as about educator's skills, knowledge and disposition. The current definition of a qualified teacher, according to the Employment of Educators Act No 76 of 1998 (DoE, 1998(a):B 2.2(i)), is that, in order to qualify for appointment as an educator, a person must have at least a recognised three-year qualification after senior certificate with a relative education-qualification value (REQV) of 13, i.e. Grade 12 plus three years of training, and which must further include appropriate training as an educator. The Occupation-specific Dispensation (OSD) agreement that was signed on 3 April 2008, describes the qualification for an educator as a senior certificate plus four years of training (REQV 14). This is part of the upskilling or upgrading of educators to increase their knowledge and their standard of teaching. Although a task team was set up with the purpose of ensuring that all existing educators would better/improve their qualifications, and though this came into effect at the

beginning of 2001 (DoE, 1998(b)), no action has as yet been taken against educators who do not comply.

2.4.2 EDUCATOR'S TRAINING

Educator training during the apartheid era was highly fragmented and there was a great disparity in terms of the quality of training that was offered (Monyooe, 2005:11). Even today, there are educators teaching with a two-year post-Standard 8 (Grade10) diploma. Though bridging courses are being offered for underqualified educators, Brijraj, CEO of the South African Council of Educators (SACE), has admitted in 2009 that there were still 25 000 educators in South Africa who had no more than a senior certificate (Davids, 2009). According to the Department of Education's Draft Report on Teacher Qualification Survey in 2009, only 18% of the then serving educators were qualified graduates and 16% of all educators had no professional teaching qualification (DoE, 2009). This was so despite the window period the DoE offered on 14 December 1998 to under- and unqualified educators that they should improve their qualifications by 2001 (DoE, 1998(b)). Although universities currently produce between 6,000 and 10,000 teachers a year, the profession is shedding 18,000 teachers over the same period of time due to retirement, immigration and death (DoE, 2009). In the 1990s, educator training colleges were closed by the DoE, because the colleges were considered dysfunctional and the training offered fragmented and too expensive for provinces to run at sustainable levels. Chisholm quotes Reddy's statistics regarding the current state of student-teacher training (Chisholm, 2004:7): in 1994, there were 150 public institutions providing teacher education to 200,000 students; by early 2000, there were 82 public institutions providing education to 100,000 students; of these, 50 were colleges of education with 15,000 students. Since 2005, new learning programmes are approved by the DoE, while the Council on Higher Education (CHE) is responsible for the accreditation of learning programmes, and the South African Qualifications Authority (SAQA) has taken responsibility for the registration of qualifications (Monyooe, 2005:11). The teacher education programmes of universities, such as the one offered at the University of the Free State, are approved and accredited by the Minister of Education. It however seems that the DoE is investigating the

possibility of re-opening colleges of education (NAT, 2008). This will increase the numbers of educators who qualify, and the standardising of training programmes will equalise and improve the quality of educators who are sent into the field. In this research, the options offered in the questionnaire were Standard 8 or Standard 10 and the number of years spent studying, because of the fragmented and non-standardised programmes offered in student-teacher training in SA.

To determine whether it was reasonable to expect educators to be able to identify the concepts described in the questionnaire, the researcher examined the training material of student teachers to assure that the concepts mentioned in the questionnaire are part of the curriculum offered by the University of the Free State (Van Zyl, 2007). Unfortunately, because the teacher's training colleges no longer exist, the researcher was unable to explore the curriculum that had been offered by them. During informal discussions with educators who had done their basic training at teachers' training colleges, one from the House of Representatives, and one from the previous Department of Education and Training (Bantu Education), they recalled that the focus had been on *perceptual development*, which was done in the first term of Grade 1. They were also familiar with the term *visual perception* (G Myburgh and G Phiri, personal communication, 28 August 2008).

2.4.3 EDUCATOR'S KNOWLEDGE

The Oxford dictionary (Oxford, 2010) defines *knowledge* as (i) facts, information, and skills acquired through experience or education; and, (ii) awareness or familiarity gained by experience. The term *knowledge* in this study presumes skills and expertise gained by training (basic and in-service) and knowledge gained through experience. When determining knowledge it is important to know what level of thinking are you requiring from your the participants. In 1956, Benjamin Bloom created his thinking taxonomy for categorizing the level of human learning. This was revised by Anderson in 1990 (Wilson, 2006) In this research the level of thinking/question were:

Remembering: (I.e. retrieving, recalling, or recognizing knowledge from memory.) Most questions in the questionnaire relied in this category such as questions where educators had to recognize correct pencil grip or identify typical performance skills.

Understanding: (I.e. constructing meaning from different types of functions) Questions in the questionnaire that reflected on understanding were questions such as, “explaining what you understand by delayed gross motor skills”. In contrast to the considerable body of research that has been done to describe the poor level of South African learners’ academic achievement, there is very little published research in South Africa that explains the relationship between classroom practice and academic achievement or failure (Fleish, 2008:121). Spreen and Fancsali (2005:15) used the data of the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) to determine learner achievement and teacher quality in Southern Africa and found a consistent and positive correlation between learners’ achievement and educator’s subject knowledge.

Borko and Putnam (1996:673-708) structure their learning to teach around three domains of knowledge: general pedagogical knowledge, subject matter knowledge and pedagogical content knowledge. In their structure, general pedagogical knowledge includes general knowledge of classroom management and knowledge of learners and learning. The other two categories identified focus more specifically on knowledge regarding the content of the specific subject matter. It was this knowledge aspect, i.e. general pedagogical knowledge regarding the typical development of a Grade 1 learner, which formed the focus of this research because of the close linkage to occupational therapy areas of concern.

2.5 ADDING ATTITUDE TO EDUCATION

2.5.1 ATTITUDE: DEFINITION AND MEASUREMENT

Attitude is described as a person’s nature to react favourably or unfavourably to an object, behaviour, person, institution or event (Ajzen, 1993:41). The

importance of attitude in the understanding of human behaviour has been researched for decades, but the relationship between measures of attitude and predicting behaviour is not clear-cut and the association is modest and unreliable (Seeman, 1993:13). To measure an abstract concept like attitude is difficult. We can only infer a persons' attitude by his/her actions and words (Henerson, Morris & Fits-Gibbon, 1987). The responses from which attitude can be inferred are cognition (verbal expressions or non-verbal perceptual reactions), affective responses (verbal expressions of feelings or non-verbal physiological reactions) and behavioural responses (verbal inclinations or plans and motor responses) (Ajzen, 1993:42). In this research, questions were developed to include all three aspects from which attitude can be inferred. The inclusion of learners with barriers to learning in the ordinary classroom is a new idea, one to which ordinary classroom educators must still grow accustomed because the old paradigm – that all learners experiencing scholastic problems must be placed in special schools – still exists. In this research, educators' knowledge and their attitudes regarding learners with barriers have been explored to assist with the eventual embracing of the inclusive practices.

2.5.2 TEACHERS' ATTITUDES: KEY AGENTS OF INFLUENCE IN LEARNER ACHIEVEMENT

Literature describes a positive relationship between educators' attitudes and learner achievement in ordinary or 'mainstream' schools (Mwira, 2006:173; Rosenthal in Bukatko & Daehler, 2004:592; Schofield, 1981:468). Traditionally, ordinary or 'mainstream' educators have been primarily responsible for teaching learners who could cope with the curriculum as it was presented. When learners experienced difficulties, the educator referred the learner to a professional for assessment and possible placement in a separate educational setting. In an inclusive setting, the educator, in collaboration with others, such as a school-based support team, DBST and parents, are mutually responsible for supporting a learner who is experiencing barriers or difficulties (SA, 2005(a):47). Currently, the researcher is aware of only a limited number of learners with moderate barriers to learning who have been placed in ordinary schools in Motheo. Mahat

(2008:90) found that educators who have a positive attitude will engage in behaviours that support learners. Where inclusion has been implemented for some time, such as in Canada and England, educators who have had active experiences of inclusion have a more positive attitude towards inclusion than do other educators with little or no experience (Avramidis, Bayliss & Burden, 2000:200; Kuester, 2000). This implies that the placement, in ordinary classes, of learners with barriers can only be effective if the educator has a positive attitude towards the implementation of inclusive education (Bukatko & Daehler, 2004:592; Kubyana 2005:45; Kuester, 2000). In this study, the researcher has aimed to determine educators' attitude regarding learners with mild barriers to learning with a view to providing information about educators' readiness to accept and support such learners in their classes. The DoE considers mild barriers as barriers that require low-frequency intervention by specialist staff (once per term), low-cost assistive devices and limited training (DoE, 2008(b):64).

2.5.3 ATTITUDE AND EDUCATORS' TRAINING

Various studies have emphasised the importance of training on the formation of a positive attitude towards inclusion. In a survey to determine the general attitudes of educators, Avramidis, Bayliss and Burden (2000:11) found that teachers with substantial training (university or specialist training) were not only more positive regarding inclusion but they also had more confidence to develop support programmes for such learners. In Kuester's (2000) longitudinal study in Canada, she found that educators with thorough training (12 or more courses) had a significantly more positive attitude than those with less thorough training. This had not been the case in 1989 when she began her research. The change can be due to the fact that when inclusion was more rigorously implemented, teacher training was also adapted and students were subsequently better trained in respect of support and inclusion. The trained educators were therefore more knowledgeable, which led to more positive attitudes. The literature also reveals that special-education teachers, with specialised training, were found to be more positive regarding the inclusion, in ordinary schools, of learners with delays (Jobe, 1996; Kuester, 2000; Minke, Bear, Deemer & Griffen,

1996:179). While this can be due to training, it can also be due to the personality traits of educators who choose to work with learners with barriers to learning.

Educators' efficiency results from their belief in their own ability to impact learners (Fives, 2003:12). Hoyand and Woolfolk (1993) investigated the relationship between teacher efficacy and personal and demographic characteristics, and teachers' sense of personal and general teaching efficacy. In data collected from 179 practising teachers, education level was found to be the only factor that predicted personal teaching efficacy. These results correlate with those of Campbell (1996:10) who found differences in efficacy in relation to education level: educators with postgraduate training reported the highest levels of teaching efficacy. It would thus seem that educators who have received education of good quality have gained more knowledge and therefore feel more confident about their own abilities. This feeling of efficiency may influence the educator's willingness to embrace the notion of inclusion and support learners with barriers to learning.

2.5.4 EDUCATORS' ATTITUDES IN RESPECT OF INCLUSION

Policy documents, such as the White Paper 6 (SA, 2001) and the Schools Act (DoE, 1996:3(1)), to name but two, emphasise the principle that education is a basic human right. For this right to be enforced, educators should be prepared to support learners in their class. In a study to determine the attitudes of educators in America towards inclusion, Jobe (1996) found that educators were neutral towards the inclusion of learners with disabilities in regular classrooms. Research in South Africa is fragmented and gives various results. Marais (2000), in a study to determine the attitudes of ordinary teachers towards including learners with special needs in regular school classrooms, found that there is no difference between the attitudes of teachers with little experience and those of established educators towards the placement of learners with special needs in regular classrooms. Kubyana (2005:37) reports that special-school educators in South Africa, being underresourced and generally not enjoying recognition, have developed a negative attitude towards inclusive strategies because of uncertainties regarding the implementation of new policies.

The integration of learners with barriers to learning in ordinary classrooms in South Africa has not been fully implemented and, from the researcher's observations, very few learners are being accommodated (and tolerated) in ordinary classrooms. South African studies are limited in scope and results often reflect how the educator *will* perceive the inclusion of learners with barriers in their classrooms rather than the actual *practical experiences* they have in this respect (Kubiyana, 2005:48). It is believed it is because educators have not had the practical experience of supporting a learner with mild barriers in their class. In a study conducted in 1998, more than 80% of regular educators indicated that the education of learners with special needs was not the primary responsibility of the regular educator (Marais, 2000). This is cause for very serious concern in that, according to the White Paper 6 (SA, 2001:17-19), it is considered the responsibility of the ordinary educator to support the learner with mild barriers in respect of learning. In the present research, educators' attitudes regarding learners with mild barriers to learning will be determined.

2.6 INCLUSION AND SUPPORT IN INCLUSIVE EDUCATION – THE CURRENT STATUS

In 1994, also the year in which the new democratic government was elected to power in South Africa, the World Conference on Special Needs Education: Access and Quality was held in Spain. During this conference, a bold and dynamic statement was made, one that called on all governments and the international community at large to make inclusive education the norm (UNESCO, 1994:1-43). The Salamanca Statement, as it was called, changed the course of education in many countries and has since influenced the lives of many learners who had previously been excluded from mainstream or ordinary education. South Africa embraced this concept with the issuing of the White Paper 6, Special Needs Education (SA, 2001). This document gives an outline of an inclusive educational and training system and describes the proposed time frame for its implementation (SA, 2001:6).

The difference between *mainstreaming* and *inclusive education* is that in mainstreaming the focus is on the learner needing to fit into the system, while

inclusion tries to address the needs of the education system/setting, so as to ensure that the learners' needs are met (SA, 2001:17). The Inclusive System can be described as a system in which learners with different learning styles and learning barriers receive quality education through appropriate curriculum presentation and a variety of teaching strategies; teachers and learners also receive support from various agencies (SA, 2001:15; UNESCO, 1994:11,31). Learning barriers can be delays in the performing of gross-motor, fine-motor or cognitive skills. The success of inclusive education relies not only on the effective *inclusion* of learners with learning barriers in the ordinary school but also on the effective *support* of these learners with barriers by professionals such as occupational therapists (SA, 2005(a):17). Although the concept of inclusion has been advocated since early 2000, it is still a new (and feared?) idea among most educators in South Africa. The proposed time frame for the implementation of the Inclusive Education and Training System was 2001 to 2003 (SA, 2001:42), but inclusion has still only been partially implemented in pilot schools, which, in Motheo District, amounts to one resource centre and one full-service school. It is believed that with the more vigorous implementation of inclusion, more educators will be confronted with (the new concept of) accommodating learners with barriers to learning in their classes.

The researcher is only aware of a few learners with mild barriers who are currently being accommodated in ordinary classrooms in Motheo District: two learners who are hard of hearing, a few learners diagnosed with Asperger's syndrome, two learners with Down syndrome, a few learners mildly afflicted with cerebral palsy – such as hemiplegic and diplegic – and one learner who is blind. Unfortunately the placement of these learners did not happen easily. Principals and educators had to be motivated and encouraged and they had to be assured that there would be support from the DBST. All placements are conditional, provided that the learners (and educators) can cope with the scholastic demands.

The incentive for the development of the Salamanca Statement in 1994 (UNESCO, 1994) was the promotion of education to every child, and the declaration is based on four beliefs, namely that every child has the right to education; every child is

unique; educational programmes must cater for diverse learning needs; and, children with barriers to learning must be accommodated in ordinary schools with adapted curricula and with additional support (UNESCO, 1994:3). The spirit of the declaration coincides with the scope of occupational therapy where the occupational therapist will take into account all the occupations in which her client might engage (AOTA, 2008:630) and will consider the client's specific abilities and characteristics. The occupational therapist also realises that each client has his/her own environment and context from which he/she performs tasks and which can further influence his/her occupational performance (AOTA, 2008:629). In other words, where the Salamanca Statement specifically promotes the provision of support to the child's needs, occupational therapy intervention addresses the specific aspect (the emotional, psychological and also the physical aspects) of delay.

2.7 CONCLUSION

Educators have a challenging task: they have to implement the curriculum with large classes and limited resources; there are training challenges; there is a minister who announces 'curriculum reform'; and, the poor numeracy and literacy rates of our country are frequently on the front pages of our newspapers. To top this, officials from Inclusive Education are adding to educators' repertoire of tasks by expecting them to support learners with barriers in their classrooms.

In South Africa inclusion is in the process of being implemented. When eventually the policy of inclusive education is fully rolled out, more educators will be confronted with the management of learners who are experiencing barriers to learning. For educators to be able to implement inclusive practices they should be trained accordingly and be knowledgeable regarding typical developing learners in order to identify learners who are experiencing delays in performing age-appropriate skills. The function of the occupational therapist is to enable learners' participation in school-based occupations (Townsend & Polatajko, 2007:191) by supporting learners to acquire the skills that form the foundation on which scholastic tasks are built (Stephens & Clark, 1985:268). This research therefore

focuses on educators' knowledge of the Grade 1 learner's performance of gross-motor, fine-motor and cognitive skills.

The literature clearly indicates that educators with a positive attitude are indeed able to influence a learner positively. Because inclusion of learners with barriers is still in the formative stage, it is important to determine what the attitudes of teachers are towards the inclusion – in their classrooms – of learners with barriers to learning. By determining the base level of knowledge regarding the mentioned performance skills and the educators' attitudes regarding learners with delays within these areas, training can be designed purposively to address the identified gaps. Although training/empowerment will not always lead to immediate change in attitude, it would seem that knowledge tends to change attitude, and that a changed attitude can lead to different behaviour (Rogers 1983:171). This research was undertaken from the premise/assumption that educators' negative attitudes towards learners with barriers to learning can be improved if their level of knowledge is enhanced. In order to attain this goal, educators' knowledge and attitudes must first be determined.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

If research is the “systematic quest for undiscovered truth” (Leedy, 1985:13) then the methodology of research is the offensive strategy. By means of this strategy, the data collection is constructed and data are collected that are reliable, relevant and valid (Burns & Grove, 2003:413). This chapter, as well as presenting the methodology of this ‘quest’, will describe both the research population and how the eventual sample was obtained. The rationale for this research, the development of the questionnaire design and the validity and reliability of the research will also be explained. Both the development of the pilot study and the ethical aspects of this research are described.

3.2 RESEARCH DESIGN

Mouton (2001:55) defines *research design* as a blueprint for how the researcher intends to do research and it is determined by the nature of the research question (Morrone & Meyer, 2007:77). In this research, the quest was to determine the knowledge and the attitudes of a group of educators at a certain point in time. This research was a cross-sectional study and data were collected by means of a questionnaire. A descriptive cross sectional design was used because the author needed the characteristics of the study population (educators) to develop customized training

3.3 RESEARCH POPULATION

The research population comprises the participants of the group about whom the researcher wants to know more and from whom a sample will be drawn that meets the criteria for inclusion in the specific research (Joubert &

Katzenellenbogen, 2007:94). In this research, the researcher wanted to obtain information regarding educators' knowledge and attitudes regarding age-appropriate performing skills. The decision to focus on Grade 1 educators was prompted by the fact that the relevant literature often refers to the importance of early identification and intervention (CAOT, 2002:3; SA, 2005(a):13). Early intervention will also minimise the secondary effect, such as behaviour, emotional and social problems that learners often display when they experience difficulty in performing age-appropriate occupational tasks (CAOT, 2002:3).

This research was conducted in the Motheo District, where the researcher is currently working, the implication being that future intervention can be done on specifically identified aspects. Motheo District is not geographically the biggest of the five districts in the Free State, but it is the most densely populated district with 122,606 of the total of 423,635 learners in the Free State (see Addendum 1 for geographical map). In 2009, 10,441 of the 34,163 Grade 1 learners in the Free State were in the Motheo District (EMIS, 2009). Unfortunately, the number of Grade 1 educators could not be determined beforehand. Post allocations are done by the DoE proportional to the number of learners in a school. It is the prerogative of each school's school governing body (SGB) to allocate educators to classes as it sees fit. In 2009, there were 343 schools in Motheo and 257 of these were primary schools (EMIS, 2009).

The research was limited to schools in which the language of learning and teaching (LOLT) was an African language. This was done because research has identified a more pronounced delay in reading and writing among these groups of learners, as described in Chapter 1. The LOLT of each of the schools was identified by the schools' Learning Support Facilitators (LSF) of the Motheo District DBST. Schools in which IsiXhosa was the LOLT were also excluded because these schools customarily use more than one LOLT. The researcher observed the tendency among learners of attending the school closest to their home and not necessarily the school that caters for their home language as LOLT. It seems that because there are fewer IsiXhosa learners in this district, schools using IsiXhosa as LOLT, attract learners speaking other languages and the

language of instruction in these schools is therefore not limited to one language. In 2009, there were all told 43 schools – primary and secondary – that offered IsiXhosa as LOLT in the Motheo District (EMIS, 2009).

Schools in which workshops, training or any occupational therapy intervention had been rendered by an occupational therapist of the DBST were also excluded. It was assumed that, through intervention, the educators would have gained knowledge and thus would have a more positive attitude towards learners experiencing barriers with occupational performance skills. Therefore, 32 schools were removed from the sampling list. This could have skewed the results.

All schools that were doing multi-level teaching (more than one grade per class) were also excluded because the educators could not be considered to be Grade 1 educators in that they were also teaching other grades. There were approximately 86 multi-level classes in Motheo District; these were mostly public schools on private property (PSPPs), i.e. 'old farm schools'.

3.4 SAMPLING

Proportional stratified random sampling was used to include all the variables in the population to obtain a sample that would be representative of the study population (Burns & Grove, 2003:349; Fink & Kosecoff, 1985:56). Since the number of Grade 1 learners per school varied between one and 344 (EMIS, 2009), stratified random sampling was done to obtain a representative sample. In the Free State there is no suggested mean for the number of learners per class because the educators are allocated according to the money available (F Kok, personal communication, 27 May 2010). The suggested number of learners per educator in America is 20 (Bohrnstedt & Stecher, 2002:11). For the purposes of this study, the researcher decided on a ratio of approximately 30 learners to one educator. Schools were grouped in groups of 30. See Table 3.1 for how groups were categorised and the number of schools per group.

After all exclusions and limitations had been applied, 50 schools were randomly selected to proportionately represent the target population. All the Grade 1

educators of the selected schools formed part of the sample. The data of two schools (four educators) could not be used because the LOLT fell within the exclusion criteria, which however could not be determined beforehand. The number of educators who participated in the survey was 117.

Table 3.1: Number of schools and number of selected schools per group

Number of Gr. 1 learners at school	Up to 30	31 to 60	61 to 90	91 to 120	121 to 150	+151	Total
Number of primary schools before exclusions and limitations	108	38	34	24	33	20	257
Number of primary schools after exclusions and limitations	7	15	26	14	21	13	96
Number of selected schools.	4	8	13	7	11	7	50
Number of participating schools.	2	8	13	7	11	7	48

3.5 QUESTIONNAIRE DEVELOPMENT

3.5.1 VARIABLES

In compiling a questionnaire the researcher should identify the variables within the scope of the research and then formulate related questions (Katzenellenbogen & Joubert, 2007:109). To obtain valid and reliable information, questions should be well written and manageable (Nardi, 2003:58). Standardised questionnaires were explored by the researcher but found not to be suitable because they did not measure the specific variables of this research.

The success of a survey relies heavily on the measuring instrument (Leedy & Ormrod, 2009:194). To determine the content of the questions, primary literature and recent research were explored to determine the expected and appropriate norms of child development (Beery & Beery, 2006; Bleck & Nagel, 1982; Clark, Florey & Clark, 1985; Denton, Cope & Moser, 2006; Tseng, 1998; Tseng & Germak, 1993; Schneck, 1991). The NCS (SA, 2002(b), (c) & (d)) was

used as a guide to determine an educator's knowledge regarding the Grade 1 learner's cognitive development. The questionnaire was made relevant to the local context by taking into account aspects identified by previous local studies. The following identified delays were incorporated in the questions: "Poor figure ground discrimination and spatial aspects" (Herbst, 1989:50); "below average scores on visual perceptual skills in more than 75, 5% of the Grade 1 learners" (Romburgh, 2006:72); and "bilateral integration as a risk or problem area in 61% pre-school children" (Van Jaarsveld, 1999:63).

Because the aim of the research was to determine educators' knowledge and attitudes, the questionnaire was divided into two parts: the first part to determine *knowledge* and the second part to determine *attitude*. According to Henerson, Morris and Fits-Gibbon (1987:18), attitude can only be inferred from a person's actions and words. The responses from which attitude can be inferred are cognition (verbal expressions or non-verbal perceptual reactions), affective responses (verbal expressions of feelings or non-verbal physiological reaction) and motivational/behavioural responses (verbal inclinations or plans and motor responses) (Ajzen, 1993:42; Avramidis, Bayliss & Burden, 2000:196; Bem, 1982:2). Most research in the field of attitude determines the acceptance or rejection of an idea, addressing only the cognitive component of attitude (Avramidis, Bayliss & Burden, 2000:96). It was thus decided to use all three components of how attitude can be inferred in the compilation of the questionnaire: *behaviour* – 10 questions; *cognition* – 6 questions; and *affect* – 5 questions.

The best measure for determining attitude is the open-ended question. Most respondents do however not like too many open-ended questions because they are time consuming (Nardi, 2003:64). Most literature suggests an intensity measure for measuring attitude (Leedy & Ormrod 2009:189; Nardi, 2003:66). In the design of the measuring instrument, three open-ended attitude questions were included and there were 15 questions that relied on intensity measures. The intensity measure had four options ranging from *No, I disagree totally* to *Yes, I agree totally* and two scales in between, there thus being no neutral or middle

ground. Each attitude question measured the educators' attitudes towards learners experiencing barriers in the three components relevant to this research: gross motor, fine motor and cognition.

The dilemma with which the researcher was confronted was the overlapping of occupational therapy concepts and educators' applicable knowledge. Educators, for example, are concerned when a learner cannot write properly; occupational therapists, on the other hand are not concerned with scholastic achievement per se, but consider a learner's motor and cognitive development to determine why the learner cannot perform age-appropriate fine-motor tasks. To surmount this difference, the researcher analysed not only the NCS (SA, 2002(b), (c) & (d)) and problems identified by educators in the Language and Learning Project (LLP, 2008:20), but also occupational therapy performance skills (AOTA, 2008:640) to find overlapping aspects to enable her to formulate the questions. It was assumed that educators teaching Grade 1 learners would be knowledgeable about the Grade 1 outcomes as specified in the NCS. The following Figure (3.1) depicts the merging of mutually inclusive aspects in determining the variables:

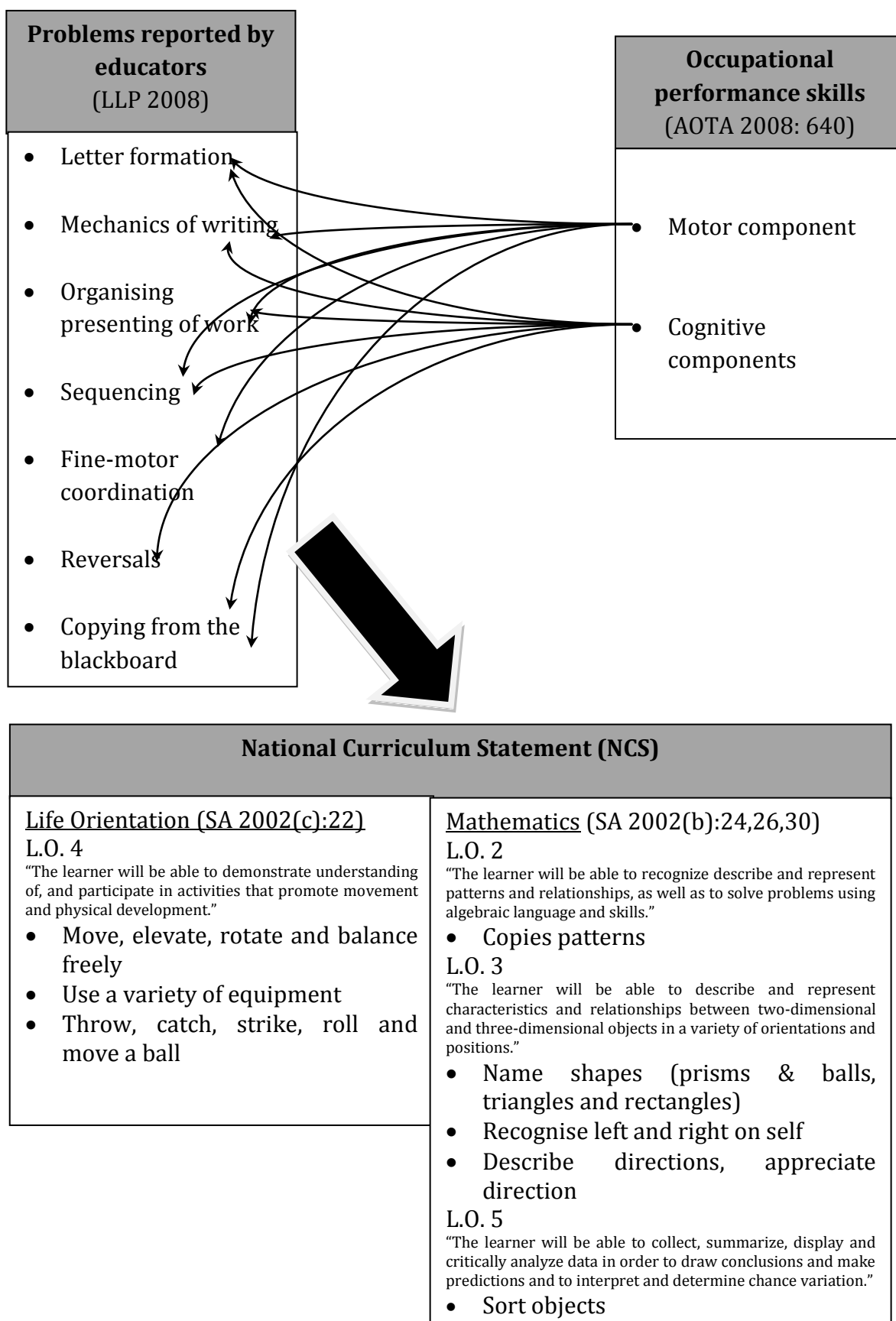


Figure 3.1: Merging of aspects to determine variables

The outcomes described under mathematics for copying patterns were not specified; therefore the researcher used the well-researched Beery standards in determining the age-appropriate geometric forms Grade 1 learners should be able to copy (Beery & Beery, 2006).

To determine the causative aspects that contributed to the motor delays identified by educators, the researcher considered the mentioned theories and frames of reference mentioned in Section 2.2.3 to identify the underlying delay in a performance skill.

3.5.2 Question type and format

The questionnaire was compiled in English. Though not the home language of most respondents, it is the language in which they received their training and it is the language of communicating in the DoE. It was believed that if simple language were used, the participants would be able to understand the questions. When addressing educators, the researcher therefore used the term *visual perception* instead of *cognitive skills* because educators are more familiar with the former.

In formatting the questionnaire, special attention was paid to making it a neat and consumer-friendly document that would entice participants to complete it and thereby contribute to reliability (Mouton, 2001:103-104). With a view to minimising confusion, prominent spaces were provided between questions, tick blocks were placed close to questions and coding was done; after the pilot studies a prominent gray line was placed between the coding blocks and the respondents' scoring blocks.

Most questions in questionnaires have closed response options. Such questions elicit limited responses, but produce more standardised data and are further less time consuming to complete (Katzenellenbogen & Joubert, 2007:110). Open-ended questions may reveal respondents' real views and will provide the researcher with unanticipated answers (Floyd & Fowler, 2002:91). Open-ended and closed questions were included in the questionnaire both for attitude and knowledge aspects. Table 3.2 tabulates the distribution of questions.

Table 3.2: Distribution of questions

TYPE OF QUESTION	NUMBER OF QUESTIONS
General information	13
Part A: Knowledge questions	19
Attitude questions: (multiple-choice)	
Inferred from behaviour	3
Part B: Open questions	8
Attitude questions: (intensity measure)	
Inferred from cognitive beliefs	4
Inferred from behaviour	7
Inferred from affect	4

In determining the sequencing of the questions, the researcher considered logic, chronological and psychological aspects: starting with questions on gross-motor skills and moving to fine-motor skills, here once again starting with general questions and moving to knowledge, and lastly moving to attitude questions that educators could find threatening – such as open-ended questions, which were only included in Question 16. In the presentation of the questions, biased items were avoided, wording simplified and double-negative and double-barrelled questions were avoided (Mouton, 2001:104; Nardi, 2003:57-69).

The following measuring scales were used (Leedy & Ormrod, 2009:191-197; Nardi, 2003:67-71; Oppenheim, 1992:115; Rea & Parker, 1997:40-43):

- Dichromatic, where the choice is only either *yes* or *no*.
- Multiple choices, such as having to mark all the shapes a Grade 1 learner would be able to copy (by choosing any three from six options).
- Intensity measure (Likert Scale) for the attitude questions, with a response range between 1 and 4.

The researcher observed, through working with educators, that most of them had limited knowledge regarding cognitive and motor skills. To limit incorrect interpretations and improve reliability, four questions were visually cued questions (VCQ) where educators had to identify aspects such as correct pencil

grip and good posture by looking at photographs (13cm X 10cm), instead of reading verbal descriptions (see copies in Addendum 7).

The researcher was only aware of the training of educators in three possible phases: Foundation, Intermediate and Senior phases. During the administration of the questionnaires there were educators ($n=8$, 7,0%) who indicated that they had been trained for all phases. To accommodate this variable, an additional block had to be inserted for Question 9.

In order to ensure reliability, six questions were asked in different ways to determine whether the same answers had been obtained (Floyd & Fowler, 2002:101; Rea & Parker, 1997:40).

3.5.3 Question rationale

Addendum 9 provides the rationale for the inclusion of each question in the questionnaire.

3.6 PILOT STUDY

A pilot study is the best means of determining whether the instructions of a questionnaire are adequate, the wording and the format are clear and whether time allocation for the questionnaire is accurate (Leedy & Ormrod, 2009:111; Nardi, 2003:85). Patten (2001:56) describes a three-way pilot study. In the first two stages, information is elicited from the participants, both verbally and in writing, and the focus is on the content and insight into the questions. The third stage is to determine whether the scales, the layout and the coding are effective. The study population was an unknown entity to the researcher in that no information regarding other studies on knowledge and attitude could be found. In order to design a reliable, valid and applicable measuring instrument it was decided to follow the three-way pilot study in compiling the questionnaire. See Figure 3.2 for the development of the questionnaire using the pilot study.

‘Think-alouds’: This pilot study was aimed to obtain information from educators by discussing the questionnaire once they had completed it. The researcher led the discussions by going through the questionnaire item by item and noting their

comments (Patten, 2001:56). It was believed that having the educators together in a group would elicit fruitful group discussions. The 'think-alouds' were done in the Xhariep District. Four educators from one school of which the LOLT is Sesotho were part of this group. This discussion produced useful but very few comments: participants commented on the layout and wording, such as the meaning of the word 'groin', the meaning of which the educators were unsure. Unfortunately, the educators did not participate actively in the discussions in the 'think-alouds'. It is speculated that this could be due to the fact that the researcher was not known to them and that they were not used to an occupational therapist visiting their schools, since there are no occupational therapists in the Xhariep District where the pilot study was conducted.

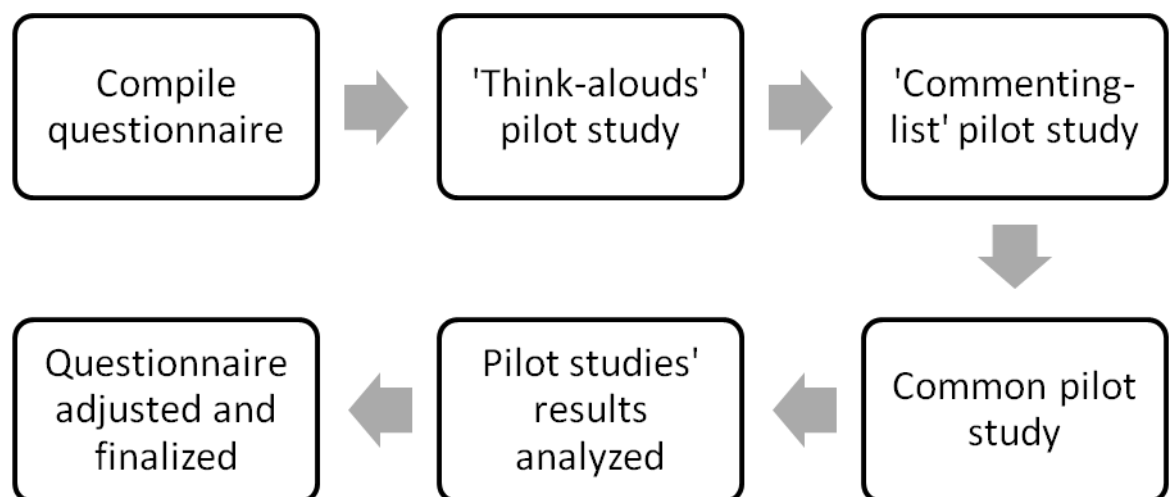


Figure 3.2: Diagram depicting the development of questionnaire

'Commenting list': The aim of this pilot study was to obtain written feedback from the educators on every item (Patten, 2001:57). The reason for this 'commenting list' was to obtain information from educators in order to widen the researcher's frame of reference and to make sure that the items were appropriate for the wide spectrum of the study population. It was also believed that by 'commenting' in writing educators would be more inclined to give comments that would be anonymous as they would be less exposed when writing than when speaking. The initial plan was to conduct this pilot study with

ten educators, but owing to constraints both of time and money, the researcher could however only use one school in another district, Xhariep. The researcher used the largest school in Xhariep District where the LOLT is Sesotho. There were only four Grade 1 educators at this particular school. Although the educators were keen to assist the researcher, it was quickly observed that the educators did not write any comments. When the questionnaires were completed, the researcher decided to invite the participants to comment verbally on each item. Once again very few but useful comments were obtained, such as those regarding the layout of Part B where questions and tick boxes were difficult to follow. The discussions made it clear that the options offered to indicate training, were not appropriate and thus needed to be adjusted. Educators used acronyms such as PCE, SPTD, JPTD, STD and ACE with which the researcher were not familiar and she was not able to determine the meaning of these acronyms. It was therefore decided to use **number** of training years instead of the names of diplomas and certificates. When the completed questionnaires were being coded, it was also observed that the participants had become confused with the coding blocks and the tick boxes. A prominent line was thus inserted between the questions and the coding blocks.

‘Common’ pilot study: this study was also planned for ten educators. Because the nearest district, Xhariep is vast yet sparsely populated, the researcher, lacking sufficient time and money, realised that it would be very difficult to conduct this study in another district. It was decided to use a school in Motheo District that had been excluded from the sample. Ten Foundation Phase educators were recruited. During this part of the pilot study, the researcher realised that individual administration of the questionnaires would not be possible owing to time constraints in respect of both the researcher and the educators. It was however observed that when there was more than one participant in the room, the participants discussed the questions. The researcher therefore had to stay in the room to ensure the individual completion of questionnaires. When the questionnaires were coded, it became evident that some questions did not discriminate well, such as the pencil-grip pictures, and that more options should be included.

During the administration of the questionnaires the researcher came to realise the possibility that educators did not understand the questions, but did not want to be exposed and therefore did not ask or admit when they did not understand the wording. It was therefore decided to translate the questionnaire in Sesotho. The translation was done by a learning-support facilitator (LSF), who holds a Master's Degree in education and has more than ten years' teaching experience in Foundation Phase.

OT's are specialist in their field and the researcher did consider them to be experts on the NCS and could therefore not be asked to comment on whether the questions were applicable to the educators. The researcher did however asked a senior OT working at a specialized school to give critique on the questionnaire regarding the occupational therapy aspects. The comments she made were taken into consideration.

The comments and information obtained in the pilot studies were analysed and if found to be appropriate, incorporated in the questionnaire.

3.7 DATA COLLECTION AND MEASUREMENT

3.7.1 DATA COLLECTION METHOD

A survey is a research procedure in which new information is solicited from participants (Rea & Parker, 1997:2). The means of data collection for a survey are questions, offered either by means of interviews, e.g. telephonic interviews, or as hard copies, e.g. mailed questionnaires, (Rea & Parker, 1997:6-8). Data obtained in a survey provide point-in-time 'snapshots' of the population and inferences can then be made about the study population. In this research, the researcher used a survey to determine the educators' knowledge and attitudes. A questionnaire was designed (see sections 3.5 and 3.6) that was to be self administered by the participants.

3.7.2 DATA COLLECTION PROCEDURE

Literature agrees on the low response rate for mailed questionnaires (Leedy & Ormrod, 2009:198 & Phillips 2004:40). It was thus decided to have the questionnaires completed 'in captive' (i.e. waiting in the venue for the

participants to complete the questionnaire) whilst visiting schools, during the normal execution of the researcher's duties. It is also believed that because the questionnaires were completed 'in captive' this contributed to the reliability of the questionnaire in that the knowledge and the attitudes obtained were those of the specific educator and had not been influenced by colleagues. If questionnaires were posted or delivered at schools, educators could compare their answers.

After permission had been obtained from the Department of Education's Directorate of Quality Assurance (Addendum3), telephonic appointments were made with principals of the selected schools in the sample. During the visit, the aim and course of the research were explained. The fact that the administration of the questionnaire would have very little impact on teaching time was discussed, and written permission was then obtained from the principals (Addendum 4). The principals were asked if it would be convenient to meet with the Grade 1 educators and only one principal requested that the researcher return the following day. During the meeting with the educators, they were informed (verbally) about the aim of the research, assured of confidentiality, told that they could withdraw at any time without detrimental effect and informed that no remuneration was involved. The fact that it was a confidential questionnaire was explained and the importance of their honesty was emphasised. Letters, containing the above information were handed to them (Addendum 5). A cooling-off period was offered by allowing participants to return to their classes and informed consent was then obtained individually.

The questionnaires were then completed in a group and mostly in the staffroom. Where a school had only one or two educators, this was done in an educator's classroom. The researcher used a script both to assure that the instructions given to respondents would be the same at each venue and to improve reliability (Addendum 6). The questionnaire consisted of two separate booklets: Part A and Part B (Addendum 10). When Part A was handed out, plates 1, 2, 3 and 4 (photos demonstrating posture, table height and pencil grip), were placed on the table, face down (copies of plates 1-4 in Addendum 7). The translated copy of the

questionnaire was also placed on the table and educators were invited to read this copy if they were uncertain of the wording of any questions. When the participants had to complete the relevant questions (A 20), the plates were revealed. Attitude questions – Part B – were handed out after the knowledge questions. Part A was deposited in a sealed box both to demonstrate confidentiality and to motivate participants to be honest and objective. Definitions of the researched components and school-appropriate examples were then handed to the participants (plates A, B and C – Addendum 8). This was in attempt to improve reliability by equalising the level of understanding, to control the influence of variables and to guide educators to focus on attitude questions.

Although the researcher had planned not to be in the same venue as the participants, it became clear during the pilot study that the educators discussed the questions if they were left alone in the venue (see Section 3.6). The researcher therefore remained in the venue, engaged in her own, unrelated tasks.

3.8 VALIDITY AND RELIABILITY OF MEASURING INSTRUMENT

A measuring tool that measures what it is intended to measure, is considered *valid*, and *reliable* if it consistently measures the entity to be measured (Leedy & Ormrod, 2009:28-29). Content Validity is the extent to which the measurement incorporates the domain of the study area (Leedy 2009: 92). This was obtained by doing a thorough Pilot study and by asking an OT to scrutinize the questionnaire and give feedback. Construct validity, refers to the theoretical model on which the questionnaire was based (Leedy 2009: 92 and Beery & Beery 2006: 106), was obtained by using well known models and theories (see Chapter 2.2.3). Concurrent validity refers to the true reflection of participants' here-and-now knowledge. (Oppenheim 1992: 144). By taking down the questionnaire 'in captive' the researcher made sure that the responses obtained in the research are a true reflection of the educators current knowledge and that educators do not 'share' their answers. Internal validity is the degree to which the design and data obtained allow the researcher to draw conclusions (Leedy 2009: 97). In

other words, did the study control all possible confounding or extraneous variable? In this study, the researcher aimed for high internal validity by selecting a proportioned sample and by developing a consumer friendly questionnaire. The researcher realize that by staying in the room might have been intimidating for the participant and that it could contribute to a Hawthorn effect because the participants new they were being studied. The advantage of obtaining reliable results (no copying) weighed more and the researcher opted to stay in the room.

The participants in the 'think-aloud' and the 'commenting-list' pilot also assisted in assuring content validity where the content and language usage were discussed. Since the pilot studies did not produce the expected results, the researcher went further and discussed the questionnaire with three educators working as support educators at primary schools in Heidedal. They guided the researcher to further simplify the wording and assured the researcher that the questions were reasonable and that it could be expected of Grade 1 educators to answer the knowledge part of the questionnaire (Fink & Kosecoff, 1985:50). Reliability was addressed by following a pre-set routine in administering the questionnaires and six questions were asked in different ways so as to establish whether questions had been correctly understood.

3.9 DATA ANALYSIS

Data analysis was done by the Department of Biostatistics at the University of the Free State to ensure that data obtained would be meaningful and so that interrelationships would be understood (Leedy & Ormrod, 2009:253). Results were summarised in terms of frequencies and percentages (categorical variables) and means or medians and ranges (numerical variables), depending on the distribution of the data.

Associations between variables among individuals were assessed using McNemar's test (categorical variables) and correlations (numerical variables). Differences between subgroups were analysed using chi-squared tests (categorical variables) and t-tests or Kruskal-Wallis tests (numerical variables). Agreement between responses to similarly phrased questions was assessed using Kappa statistics.

3.10 ETHICAL CONSIDERATIONS

3.10.1 PERMISSION TO CONDUCT RESEARCH

Permission was obtained both from the Ethics Committee of the Faculty of Health Sciences at the University of the Free State (ETOVS 15/09) and from the Department of Education, Directorate Quality Assurance (Addendum 2). Permission for this research was granted by both institutions (Addendum 3).

3.10.2 INFORMED CONSENT

Consent can be considered to be informed if the participants have knowledge and an understanding of the extent of risk involved and give consent to participate, without coercion, undue influence or inappropriate incentives (HPCSA, 2007). The educators were informed about the aim of the research, and ethical aspects were discussed with them as described (see Section 3.7). By duplicating the verbal information with a written letter, offering a cooling-off period and by obtaining consent individually, the researcher complied with the requirements in respect of informed consent.

3.10.3 CONFIDENTIALITY

Confidentiality was guaranteed in that the questionnaires were completed anonymously and that they were then deposited in a sealed box in full view of each participant.

3.10.4 PUBLISHING

The role of occupational therapy in the education system has been well described and researched in other countries, such as the United States of America, Canada and Australia (CAOT, 2002; Niehues, Bundy, Mattingly & Lawlor, 1991:208). In South Africa, having occupation therapists in the DoE at the district level is however a new and welcome phenomenon. It is believed that this research will give added impetus to the argument that occupational therapists do indeed have a role to play in supporting learners experiencing barriers to learning, and that it will further also advocate the need for more occupational therapist posts at this level in the DoE. All researchers are ethically obliged to publish their results so as to add to the body of knowledge to advance the evidence-based practice of occupational therapy and to promote the need for and development of occupational therapy as an occupation. The researcher anticipates publishing this research in an accredited journal,

3.11 CONCLUSION

This chapter explained the method employed in this research, the rationale for using this specific design and how the sample was composed. The success of a survey relies heavily on the measuring instrument. In this chapter the steps in designing the questionnaire, as well as the rationale behind the questions were clarified.

Although pilot studies can be seen as cumbersome, the need for and the benefits of a thorough pilot study were discussed in this chapter. Ethical considerations applicable to this particular research were also explicated.

CHAPTER 4

RESULTS

4.1 Introduction

The preceding chapters explained the reasons for developing the research and the research method. This chapter will both report on the results obtained and describe the statistical analysis of the data.

The results are presented in the following sequence:

- Description of sample
- Knowledge questions
- Attitude measured by intensity measures, multiple-choice questions and open-ended questions
- Relationships between various concepts
- Reliability of questionnaire

The results are presented both by means of descriptions and in the form of graphs and tables.

In scoring the knowledge questions, it was assumed that if an educator left a question unanswered, this was because of a lack of knowledge. The total/composite knowledge score was obtained by determining the average of four gross-motor questions (A1, A2, A7 and A16-1), four fine-motor questions (A3, A4, A14, A16-2) and seven visual-perception questions (A8, A9, A10, A11, A12, A13 and A16-3). Questions A5, A6 and A15 were excluded because the questions included more than one component. The initial plan was to use an equal number of questions regarding motor and cognitive skills: eight motor and eight cognitive. The literature research and discussions with colleagues made it increasingly apparent that the ability of developing a writing hand (also called *preferred hand* or *dominant hand*) was in fact a combined gross-motor, fine-

motor and cognitive skill. It was thus decided not to include this question as a cognitive question, which led to the total of eight motor and seven cognitive questions.

It was also decided not to include visually cued questions (VCQs) in determining the total score for knowledge because VCQs were only included in gross-motor and fine-motor questions and also because no information regarding the usage or reliability of such questions could be traced.

In completing the attitude questionnaire, some educators unfortunately only marked one subquestion in each three-pronged question. These questionnaires were examined but no pattern or sequence in the answering could be detected. For each of the educators the score obtained was calculated as a percentage of all the attitude questions that had been answered. Educators had to complete at least three-quarters of the items on a specific area (such, for example, as gross-motor skills) for their responses to be included in the results. There were seven, five and seven questionnaires (in each of the respective components) that could not be used because the educators had not completed three-quarters of the items. This is reflected in the varying number of participants in the results pertaining to attitude.

4.2 DESCRIPTION OF SAMPLE

The first section of the questionnaire was aimed at collecting information regarding the participants' age, gender, home language, training, work experience, as well as the language of teaching and learning, and the number of learners in the participant's class.

There were 48 schools in the sample with 117 Grade 1 educators completing the questionnaire.

Table 4.1: Age and experience of participants

Variable	<i>n</i>	Mean	Min	Max
Age in years	95	46,6	30,8	59,8
Teaching experience in Grade 1 in months	115	88,0*	1	408
Teaching experience in Foundation Phase, including Grade 1, in years	113	16,6	0	34

* Median used because of considerable spread in results.

As displayed in Table 4.1, all participants were female and their individual Grade 1 teaching experience varied between one month and 34 years.

It was observed that only 95 educators (81,2%) provided their date of birth on the questionnaire.

The home language of 58,0% ($n=68$) of the educators was Sesotho and for 39% ($n=46$) it was Setswana. There were two educators who spoke IsiXhosa at home and one who spoke English. The language of instruction at all the schools was either Sesotho (70,0%, $n=82$) or Setswana (29,9%, $n=35$).

Only three educators (2,7%) in the sample had completed their training during the past four years (see Table 4.2), and nearly half of the sample (47,3%) had completed their training more than 20 years earlier.

Table 4.2: Completion of training ($n=112$)

When training was completed	<i>n</i>	%
Before and up to 1975	5	4,5
1976–1980	20	17,9
1981–1985	17	15,1
1986–1990	20	17,9
1991–1995	19	17,0
1996–2000	16	14,3
2001–2005	12	10,7
2006–2008	3	2,7

The training of educators regarding specific phases is reflected in Table 4.3. It was found that 80,5% ($n=91$) of the educators in the sample had been trained for Foundation Phase education.

Table 4.3: Phase-specific training ($n=113$)

Training	<i>n</i>	%
Foundation Phase	91	80,5
Intermediate Phase	7	6,1
Senior Phase	7	6,1
For all phases	8	7,1

A breakdown of educators' basic training is provided in Table 4.4. It can be seen that more than half (53%, $n=62$) of the participants had completed a three-year training course.

Table 4.4: Educators' basic training ($n=117$)

Training years	<i>n</i>	%
Standard 8 + 2 years' training	22	18,8
Standard 8 + 3 years' training	3	2,6
Standard 10 + 2 years' training	8	6,8
Standard 10 + 3 years' training	62	53,0
Standard 10 + 4 years' training	6	5,1
Bed	15	12,8
Postgraduate Diploma in Education (PGDE)	1	0,9

Only 18,8% ($n=22$) of the educators had a basic four-year qualification, which is the minimum requirement for educators.

There were 81 (69,2%) of the 117 educators who indicated that they had acquired formal post-basic training (Table 4.5).

Table 4.5: Educators' formal post-basic training ($n=81$)

Training	<i>N</i>
Diploma in Further Education	26
BEd(Hons): Support/remedial	15
BEd(Hons): Curriculum Studies	7
BEd(Hons): Management	21
BEd(Hons): Policy studies	1
Other	11

Among the 'other' courses indicated by the educators were Advanced Certificate in Education (ACE), a BA degree, a National Professional Diploma in Education (NPDE) and school-readiness. NPDE is the upgrading qualification specifically designed to assist teachers who only have a two-year qualification (ELRC, 2009:85). When asked to indicate whether they were currently engaged in further studies, 28 (23,8%) educators indicated that they were. The courses they were taking were ACE (46,4%), BEd(Hons) (21,4%), while 10,7% were doing an NPDE. Each of the following courses was taken by one educator only: Curriculum Studies, Human Resources, SCRIPT, Administration, Office Management and a Diploma in Further Education.

The smallest class size was 21 ($n=1$) and the largest class was 67 ($n=2$). Figure 4.1 indicates the class-size for the sample. The mean number of learners per class was 42 and there were nine classes with 42 learners per class (modus).

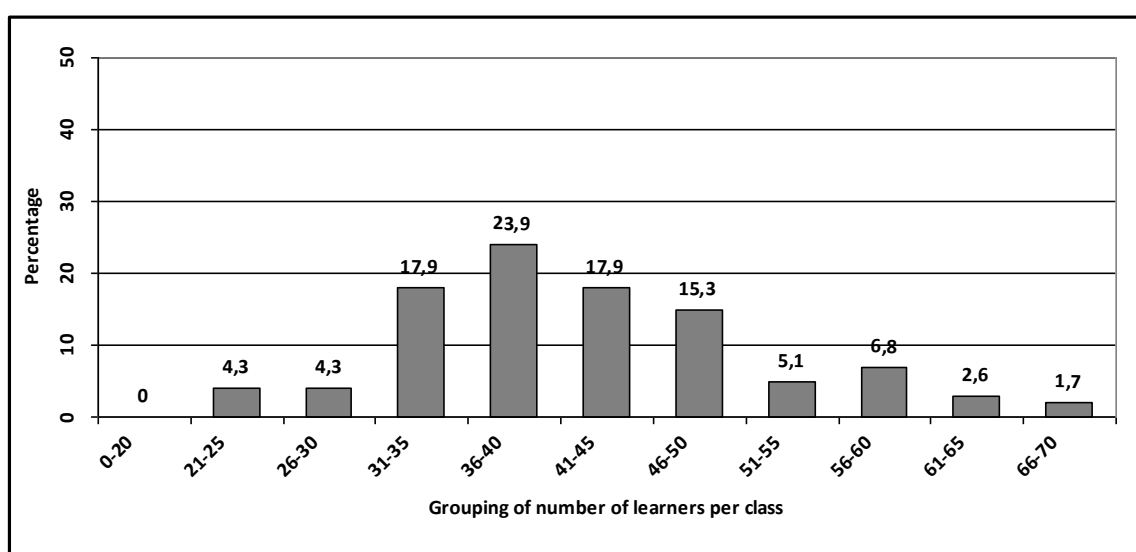


Figure 4.1: Frequency of class size ($n=117$)

There were only 10 classes (8,5%) with 30 or fewer than 30 learners per class.

4.3 KNOWLEDGE

4.3.1 INTRODUCTION

The results of the questions on educators' knowledge will be discussed in the following sequence: firstly the scores of the three components, namely gross-motor, fine-motor and cognitive performance skills. Next, there is a comparison of the scores obtained in respect of gross-motor, fine-motor and cognitive performance skills. This is followed by a discussion of the relationship between visually cued questions and being able to describe motor components, and the ability to identify gross-motor skills versus the ability to identify fine-motor skills. The knowledge results will conclude with a description (open-ended question) of the concepts *attention deficit* and *hyperactivity*.

4.3.2 KNOWLEDGE: GROSS-MOTOR PERFORMANCE SKILLS AND RELATED ASPECTS

Knowledge questions regarding gross-motor skills consisted of three multiple-choice questions, three visually cued questions and one open-ended question, each requiring educators to describe what they understood by gross-motor delays. It was observed that 23 of the 117 educators (19,7 %) identified all the incorrect skills when they had to identify gross-motor skills (see Table 4.6). The open-ended question requiring educators to describe what they understood by the term *gross-motor delay*, was not answered by 12,8% ($n=15$) of the educators.

Table: 4.6: Answers to gross-motor questions

	Question	N	% correct	Other information
MC	Typical gross-motor skills (A1)*	117	12,0%	19,7% all incorrect
	Identify well-developed gross-motor skills (A2)	117	41,0%	1,7 % all incorrect
	What muscle tone is (A7)	117	5,1%	23,9% indicated 'don't know'
VCQ	Identify good posture (A21)	117	98,3%	-
	Identify appropriate table height (A20)	117	66,7%	-
	Identify midline crossing difficulty (A22)	117	37,6%	16,2 % indicated 'don't know'
O	Describe gross-motor delay in words (A16)	102	27,5%	12,8% did not complete the question

MC – multiple-choice questions; VCQ – visually cued questions; O – open-ended question

* The letter and the number refer to question number in questionnaire (see Addendum 10).

By far the largest percentage of the educators ($n=57$, 48,7%), identified muscle tone as the ability of muscles to work together; only six educators (5,1%) chose the correct option. A visually cued question, to identify good posture, scored the highest number of correct responses, i.e. 98,3% ($n=115$), which was the highest knowledge score obtained of all the questions. The ability to cross one's imaginary midline is a technical concept. By using a photograph, language usage was limited so as to increase validity and 37,6% ($n=44$) of the educators answered this question correctly, while 16,2% ($n=19$) admitted that they did not know the answer. In questions A1 and A 4 the same options were offered. In A1 the educators had to choose gross-motor skills, and in A4, fine-motor skills. Gross-motor skills were correctly identified by 12,0% ($n=14$) of the educators.

Only 27,5% of the educators were able to describe gross-motor skills correctly (Table 4.6) and 15 educators – 12,8% of total study population – did not complete this question. Correct answers included answers such as:

- “A process whereby big human muscles cannot perform well in time as expected – skipping and jumping.”
- “Slow to do something, eg jumping.”
- “Learner cannot walk on a rope or a line.”
- “Is the skills whereby a learner cannot use her body posture correctly, eg catching a ball.”

Incorrect answers included:

- “When a child cannot see very well. And cannot see the Alphabet.”
- “If a learners is unable to handle a pencil or unable to cut with a pair of scissors.”
- “It means poor concentration.”
- “Cannot sit or stand still.”
- “Learner are slow to read and write in class.”
- “Poor muscles.”

The median of the total score for knowledge in respect of gross-motor skills was 25,0%, while scores ranged from 0% to 75%.

4.3.3 KNOWLEDGE: FINE-MOTOR PERFORMANCE SKILLS AND RELATED ASPECTS

The questions to determine knowledge in respect of fine-motor skills consisted of four multiple-choice questions, one visually cued question and one open-ended question. Twenty-four (24) educators (20,5%) were able to identify all the fine-motor skills correctly (see Table 4.7).

Table: 4.7: Answers to fine-motor questions

	Question	<i>n</i>	% correct	Other information
MC	Typical fine-motor skills identify(A4)	117	20,5%	4,3% marked all the incorrect options
	Appropriate support for pencil-grip problems (A3)	117	20,5%	0,9 % marked all the incorrect options
	When writing hand is established (A6)	116	67,2%	-
	What shapes Grade 1 can copy (A14)	117	32,5%	7,7% marked all the possible options
VCQ	Identify correct pencil grip (A23)	117	9,4%	2,6% marked all the incorrect options
O	Describe fine-motor delay in words (A16)	105	49,5%	10,3% did not answer the question

MC – multiple-choice questions, VCQ – visually cued questions and O – open-ended question

When having to choose between what they considered to be gross-motor or fine-motor skills (A1 and A4), 20,5% ($n=24$) of the educators were able to identify fine-motor skills correctly. It was further observed that 49,5% ($n=105$) of the educators could describe fine-motor skills correctly; 12 educators, i.e. 10,3% out of the total study population, did not complete this question. Answers that were considered as correct included:

- “When small muscles cannot perform as expected eg gripping of a pencil.”
- “Cannot write without struggling to hold pencil.”
- “It is poor development of hand muscles that unable the child not to be able to hold a pen, write correctly.”
- “When a learner cannot handle the pencil.”
- “It the skills whereby a learner cannot hold a pencil correctly or even trace a picture.”

Answers that were considered to be incorrect included answers such as:

- “The learner is unable to stand for 1 minute or hop with one foot.”

- “Slow learners.”
- “Cannot walk on one leg or jump on one leg.”
- “He or she cannot write and read like other learners.”

The median of the total score for knowledge regarding fine-motor skills was 25,0%, with a range from 0% to 100%.

4.3.4 KNOWLEDGE: COGNITIVE-PERFORMANCE SKILLS AND RELATED ASPECTS

Knowledge questions regarding cognitive skills consisted of six multiple-choice questions and one open-ended question requiring educators to explain what they understood by cognitive delays. Only 16 of the 117 educators (13,7%) were able to identify correctly all four of the components that describe cognitive skills, such as not being able to differentiate between shapes (see Table 4.8). Reversals of ‘b’ and ‘d’ were recognised by 85,5% ($n=100$) of the educators as a cognitive skill. All the options offered were marked by 14 educators (12,0%) and 42 educators (35,8%) considered cutting with scissors to be a cognitive skill.

Table 4.8: Answers to cognitive questions

	Question	<i>n</i>	% correct	Other information
MC	Identify typical cognitive performance skills(A8)	117	13,7%	85,5% recognised b/d discrimination 12,0% chose all options
	Identify body parts (A9)	117	8,5%	17,0 % chose all options
	Identify 3-D shapes (A10)	117	50,4%	12,8% chose all the incorrect options
	Identify 2-D shapes (A12)	117	53,0%	-
	Identify spatial concepts (A13)	117	14,5%	55,6% marked all options
	How long can a Grade 1 concentrate (A 11)	117	46,1%	14,5% indicated that none of options were correct
O	Describe cognitive delay in words (A16)	111	34,2%	only 1,8% rephrased question 5,1% did not complete question

MC – multiple-choice questions; O – open-ended questions

There were only 34,2% of the educators who could describe cognitive skills correctly (Table 4.8) and six educators – 5,1% of the total study population – failed to complete this question. Answers that were considered as correct included answers such as:

- “Cannot recognize same shapes or word pictures.”
- “Is the skills whereby a learner cannot differentiate between ‘b’ and ‘d.’”

- “Cannot distinguish things eg. p or d or t or f.”
- “The child misses some letters or does not know the difference between ‘b’ or ‘d’.”
- “She/he can’t recognise the correct colour.”
- “When the learner mixes figures or letters.”

Answers that were considered as incorrect included answers such as:

- “Lack of eye hand coordination skills.”
- “She can’t see clearly.”
- “Not good eyeside.”
- “A learner who does not see clearly.”
- “She or he cannot perform very well and become bored.”

The median of the total score for knowledge regarding cognitive skills was 28,6%, with a range from 0% to 85,7%.

4.3.5 KNOWLEDGE SCORE: TOTAL

The total knowledge score was obtained by calculating the scores of 15 items (four gross-motor, four fine-motor and seven cognitive skills).

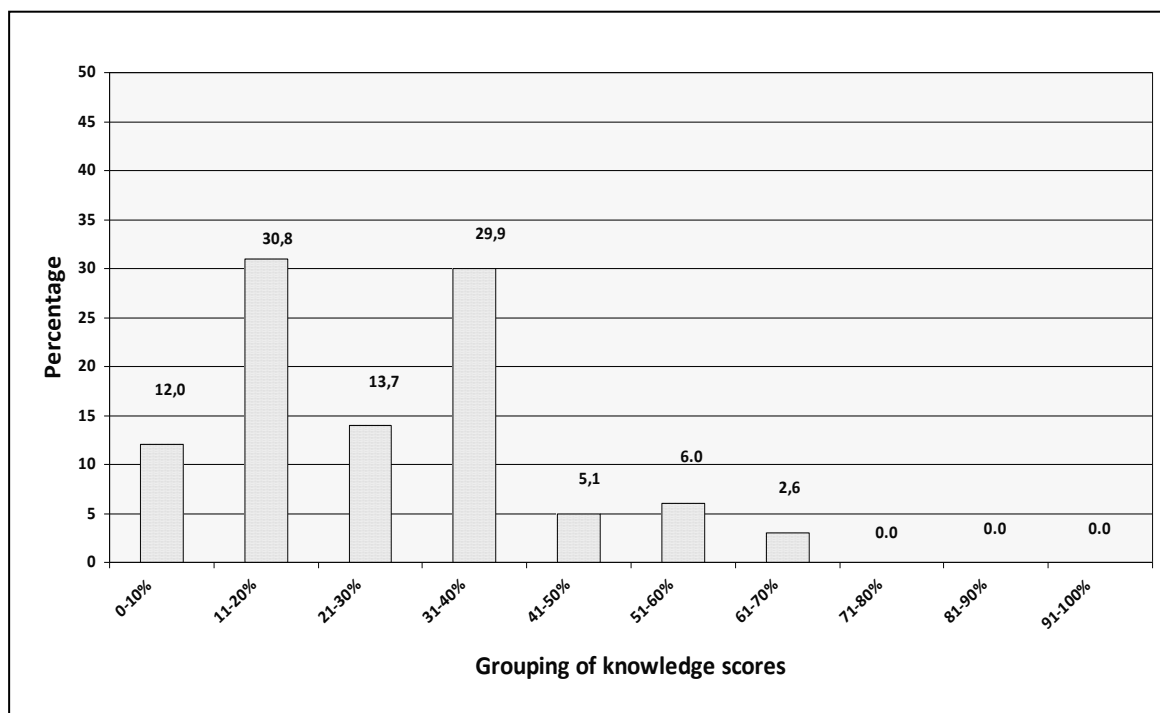


Figure 4.2: Total knowledge scores (n =117)

The scores obtained are reflected in Figure 4.2. There were three educators (3%) who could not answer any questions correctly, while 91% of the educators scored below 47%. The highest score of 67% was obtained by three educators.

4.3.6 COMPARISON BETWEEN IDENTIFYING AND DESCRIBING GROSS-MOTOR, FINE-MOTOR AND COGNITIVE PERFORMANCE SKILLS

Educators were asked to identify the characteristic of each performance skill, for example: “Are typical fine-motor skills kicking a ball or threading beads?” Question A1 sought to gauge educators’ knowledge regarding gross-motor skills, while Question A4 and Question A8 sought to do so regarding fine-motor skills and cognitive skills ($n=117$ for Questions A1, A4 and A8). In another question (A16), educators were asked to describe, in their own words, what they considered the delays in each performance skills to be.

Figure 4.3 indicates the difference between the educators’ ability to identify typical skills and their ability to describe delays in respect of these skills.

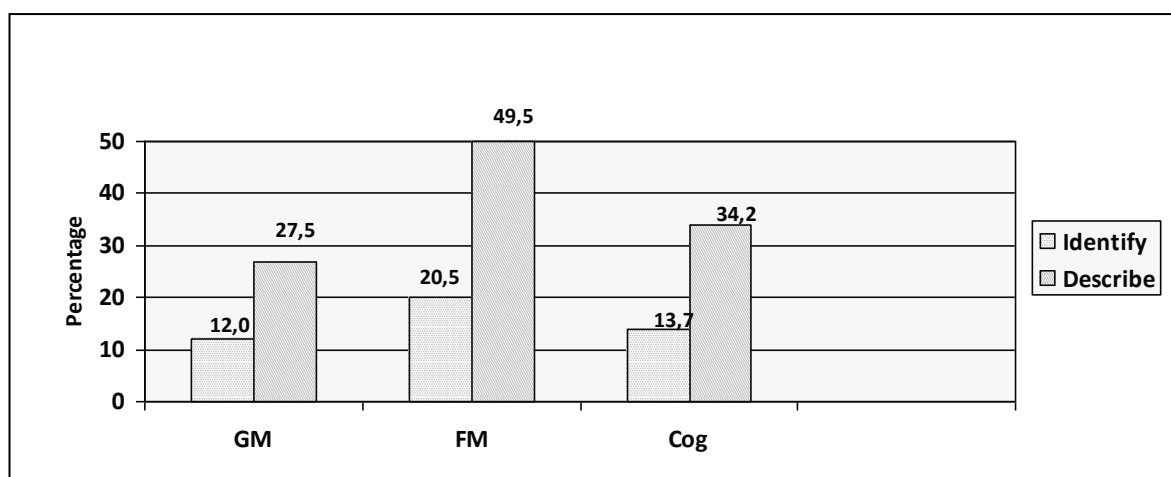


Figure 4.3: Ability to describe and to identify delays

(Describing: $n=102$, 105 and 111 for gross-motor, fine-motor and cognitive delays respectively; all others, $n=117$)

It was observed that more educators were able to identify and describe fine-motor skills than were able to do so in respect of gross-motor and cognitive skills. In respect of gross-motor, fine-motor and cognitive skills there were significant differences between participants' ability to *describe* and their ability to *identify* ($p=0.0106$, <0.0001 , 0.0002). As regards *identifying*, there was a

significant difference between gross motor and fine-motor ($p=0.0253$). As far as describing is concerned there were significant differences between gross motor and fine motor ($p=0.0001$) and between fine motor and cognitive ($p=0.0112$).

4.3.7 VISUALLY CUED QUESTIONS VERSUS DESCRIBING MOTOR COMPONENTS

There were 35 educators who were able to respond correctly to three or four of the four visually cued questions. Of these 35 educators, 19 (54,3%) were unable to describe motor skills (gross motor and fine motor) correctly. Of the 82 (70,0%) who had fewer than two of the visually cued questions correct, 50,0% could not describe motor skills correctly. It was thus evident that educators with good knowledge regarding the visually cued questions demonstrated a lack of knowledge/ability in describing poor performance skills; but educators who fared poorly in visually cued questions, also fared poorly in describing performance skills. Thus there was no apparent difference – in their description of motor skills – between educators who could answer the visually cued questions correctly and those who could not.

4.3.8 ABILITY TO IDENTIFY GROSS-MOTOR SKILLS VERSUS ABILITY TO IDENTIFY FINE-MOTOR SKILLS

Since the NCS for Grade 1 focuses more on fine-motor skills than on gross-motor skills, the researcher wanted to know whether educators had better knowledge of fine-motor skills than of gross-motor skills. The results (A1 and A4) were tabulated in Table 4.9, a 2 X 2 table.

Table 4.9: Educators' ability to identify gross-motor and fine-motor skills

		Fine-motor skills	
		Incorrect	Correct
Gross-motor skills	Incorrect	75,2% ($n=88$)	12,8% ($n=15$)
	Correct	4,3% ($n=5$)	7,7% ($n=9$)

It was found that of the educators who could identify gross-motor skills correctly 64.3% (9/14) could also correctly identify fine-motor skills, compared with only 14.6% (15/103) of those who could not identify gross-motor skills correctly ($p=0.0253$).

4.3.9 ABILITY TO DESCRIBE CONCEPTS

Question A16 required of the educators to give brief descriptions of what they understood *hyperactivity* and *attention deficit* to mean. Although these terms cannot be categorised under gross-motor, fine-motor or cognitive skills, the researcher wanted to determine the educators' knowledge regarding these terms because of the co-morbidity of motor and learning difficulties that often exists in conjunction with attention-deficit hyperactive disorder.

There were 51,4% ($n=56$) of educators who could correctly describe *hyperactivity* and seven educators, i.e. 6,4% ($n=108$) used the word 'disrupts' in their answers. Answers that were considered correct included:

- "Unable to concentrate and very unsettled and disturbing."
- "When one need to do something – does not want to stay calm."
- "The learner is unable to concentrate on what she is taught eg, if you ask a question about what you are busy teaching them she can't reply."
- "Standing up all the time not listening to instructions."
- "She is always the first to answer the questions in the class or always moving around in the class."
- "Is an action of being over active and do not listen properly what they are suppose to do, doing more than necessary."
- "This learners cannot sit still in class they are always moving around or they are up to something."
- "Is doing what is not asked for or seeking too much attention."
- "Playful, jumping and spinning."
- "Instead of listening and writing he disturbs others by pinching or singing out of nothing."

Answers that were considered incorrect included:

- “She becomes very tired and have no interest in school.”
- “Finishes the work.”
- “The learner feels tired and wants to sleep in class.”
- “Too upsetminded.” [absent-minded]
- “Can’t see clearly when writing ‘b’ and ‘d’.”

There were 35,1% ($n=38$) of educators who were able to describe *attention deficit* correctly and 18 educators (16,7%) who rephrased the question and gave answers such as “lack of concentration”. Answers that were considered correct included:

- “Cannot concentrate for a longer period. Mind become distracted easily.”
- “The brain become tired during the lesson.”

Answers that were considered incorrect included:

- “He don’t want to read or play.”
- “Cannot comprehend.”
- “Don’t want to communicate and cry easily.”
- “Does things he wishes, don’t follow what is expected, say things not expected.”
- “Lacks practising patience.”

4.4 ATTITUDE

4.4.1 GENERAL INFORMATION

Attitude was measured by means of 15 questions using an intensity measure (Likert Scale), three multiple-choice questions and three open-ended questions. The 15 questions using an intensity measure consisted of positive and negative statements regarding the educators’ attitudes. Responses could be indicated on a 4-point scale: *No, I disagree totally; I disagree somewhat; I agree somewhat; or Yes, I fully agree*. In calculating the responses, the negative questions were swopped around so that ‘1’ represented a negative response and ‘4’ a positive response. Question B12 was not included in the measuring of attitudes regarding

the three components. The question read as follows: *“I believe that the following can be reasons why learners experience barriers with motor and perceptual tasks: financial problems, poor health, family problems, slow development.”* It was considered that this question would measure the educator’s attitudes towards contextual factors that might have influenced the learners’ performance. Unfortunately, a large number of educators did not complete Question B12: 55 (47,0%) compared, for example, with the 13 (11,1%) who did not complete Question 10.

The questions with intensity measures were three-pronged, and requiring responses regarding gross-motor, fine-motor and cognitive aspects in one question. A typical question was:

“I am tolerant towards learners who are slow to understand:

How to write neatly (fine motor)¹

How to discriminate between ‘b’ and ‘d’ (cognitive)

How to jump with two legs, ‘jumping-jacks’ (gross motor)”

The results in respect of *attitude* will be presented in the following sequence: the scores of intensity-measure questions regarding the three components and contextual factors will be followed by the total attitude scores and a breaking down of the scores into inferred aspects. Then the multiple-choice questions will be discussed and the section will conclude with a discussion of the open-ended questions.

Tables 4.10 to 4.12 indicate the percentages of the attitude scores in respect of the gross-motor, fine-motor and cognitive components.

4.4.2 ATTITUDE: GROSS-MOTOR SKILLS (INTENSITY MEASURE)

It was observed that Questions B6 and B13 elicited more negative responses than did the other questions measuring this aspect (Table 4.10).

¹ The brackets were not included in the questionnaire.

Table 4.10: Percentages of educators' responses to gross-motor attitude questions

Question	n	Attitude Negative → Positive			
		1	2	3	4
B1. I believe it is important to make modification or adaptations in activities for learners who experience difficulty with maintaining a comfortable sitting position when writing.	107	2,8	6,5	23,4	67,3
B2. I am willing to do extra preparation to support learners who need extra help with tasks such as catching a ball.	111	8,1	9,0	35,1	47,8
B3. I easily get irritated if I must repeat instructions to learners who still do not know how to maintain a good posture when writing.	111	18,9	17,1	25,2	38,7
B4. I will often ask my colleagues for advice or assistance to help learners who cannot hop on one leg.	112	21,4	14,3	39,3	25,0
B5. I enjoy teaching learners that need extra help to learn tasks such as how to gallop.	111	13,5	16,2	32,4	37,8
B6. I believe that a learner who behaves badly can be a learner with barriers to learning such as unable to kick a ball well.	107	49,5	22,4	15,9	12,1
B7. I believe I can identify the following learning barriers: poor gross-motor skills.	110	2,7	10,9	22,7	63,4
B8. I get upset if learners take too long to respond if I assist them in learning how to throw and catch a ball.	112	8,9	21,4	19,6	50,0
B9. I will usually do extra reading to educate myself so that I can support learners who are clumsy.	111	10,8	6,3	29,7	53,1
B10. I tend to spend more time with learners who are slow to learn how to jump with a skipping rope.	111	10,8	20,7	34,2	34,2
B11. I am tolerant towards learners who are slow to understand how to jump with two legs 'jumping-jacks'.	107	14,0	17,8	32,7	35,5
B13. I will often contact the parents/caregivers of learners who are not progressing with tasks such as kicking and catching a ball.	108	33,3	21,3	23,1	22,2
B14. I will often stay after school to support learners who experience difficulty with balancing and walking on a brick wall.	109	22,2	20,1	27,5	30,3
B15. I will often use extra learning aids to support learners who have difficulty in learning task such as balancing and ball skills.	110	13,6	10,0	30,0	46,4

Question B6 elicited the highest number of negative responses (49,5%) of all the attitude questions and also of the other components.

4.4.3 ATTITUDE: FINE-MOTOR SKILLS (INTENSITY MEASURE)

The only question where the percentage of negative responses was more than the positive responses was also question B6 (see Table 4.11).

Table 4.11: Percentages of educators' responses to fine-motor attitude questions

Question	n	Attitude			
		Negative		Positive	
		1	2	3	4
B1. I believe it is important to make modification or adaptations in activities for learners who experience difficulty with writing between lines.	115	0,9	4,4	24,4	70,4
B2. I am willing to do extra preparation to support learners who need help with tasks such as cutting with scissors.	113	4,4	4,4	29,2	62,0
B3. I easily get irritated if I must repeat instructions to learners who still do not know how to hold their pencil.	113	18,6	17,7	22,1	41,6
B4. I will often ask my colleagues for advice or assistance to help learners who cannot colour between the lines.	111	17,1	18,0	20,7	44,1
B5. I enjoy teaching learners that need extra help to learn tasks such as how to cut with scissors.	113	8,9	4,4	30,1	56,6
B6. I believe that a learner who behaves badly can be a learner with barriers to learning such as unable to write fast enough.	109	32,1	24,8	22,0	21,1
B7. I believe I can identify the following learning barriers: poor fine motor skills.	112	5,4	5,4	24,1	65,2
B8. I get upset if learners take too long to respond if I assist them in learning how to cut with scissors on a line.	112	12,5	21,4	21,4	44,6
B9. I will usually do extra reading to educate myself so that I can support learners who cannot write well.	111	5,4	1,8	16,2	76,6
B10. I tend to spend more time with learners who are slow to learn colouring and writing.	115	2,6	8,7	32,2	56,5
B11. I am tolerant towards learners who are slow to understand how to write neatly.	112	8,9	13,4	25,9	51,8
B13. I will often contact the parents/caregivers of learners who are not progressing with tasks such as writing tasks.	113	2,7	2,7	13,3	81,4
B14. I will often stay after school to support learners who experience difficulty with writing letters and numbers.	116	6,0	5,2	12,9	75,9
B15. I will often use extra learning aids to support learners who have difficulty in learning task such as holding a pencil properly.	112	1,8	8,9	21,4	67,9

The fine-motor question that obtained the highest percentage of positive responses (81,4%, $n=113$) was Question B13, where educators indicated that they would contact parents if learners were not progressing with writing tasks. This was the second highest score obtained in all of the attitude questions.

4.4.4 ATTITUDE: COGNITIVE SKILLS (INTENSITY MEASURE)

The majority of educators responded positively to all cognitive questions (see Table 4.12).

Table 4.12: Percentages of educators' responses to cognitive attitude questions

Question	n	Attitude Negative → Positive			
		1	2	3	4
B1. I believe it is important to make modification or adaptations in activities for learners who experience difficulty with learning the names of shapes.	107	2,8	7,5	25,2	64,5
B2. I am willing to do extra preparation to support learners who need help with tasks such as discriminating between colours and naming of colours.	113	5,3	4,4	26,6	63,7
B3. I easily get irritated if I must repeat instructions to learners who still do not know which hand is their right hand.	113	16,8	15,9	16,8	50,4
B4. I will often ask my colleagues for advice or assistance to help learners who get confused between 'b' and 'd'.	116	10,3	4,3	20,7	64,7
B5. I enjoy teaching learners that need extra help to learn tasks such as concepts such as on top of, next to, behind.	114	4,4	9,7	32,5	53,5
B6. I believe that a learner who behaves badly can be a learner with barriers to learning such as unable to identify shapes, numbers and letters.	114	24,6	14,9	16,7	43,9
B7. I believe I can identify the following learning barriers: poor visual perceptual skills.	111	4,5	3,6	22,5	69,4
B8. I get upset if learners take too long to respond if I assist them in learning how to how to sort things from smallest to biggest.	114	9,7	20,2	27,2	43,0
B9. I will usually do extra reading to educate myself so that I can support learners are cannot read well.	116	4,3	2,6	13,8	79,3
B10. I tend to spend more time with learners who are slow to learn how to slow to learn left and right on themselves.	112	3,6	9,8	31,3	55,4
B11. I am tolerant towards learners who are slow to understand how to how to discriminate between a 'b' and a 'd'.	112	7,1	7,1	29,5	56,3
B13. I will often contact the parents/caregivers of learners who are not progressing with tasks such as learning the letters and numbers.	113	3,5	5,3	18,6	72,6
B14. I will often stay after school to support learners who experience difficulty with understanding spatial concepts such as on top, next to, last, first, underneath.	110	5,5	10,9	30,9	52,7
B15. I will often use extra learning aids to support learners who have difficulty in learning task such as the names of letters and numbers.	115	1,7	1,7	7,0	89,6

Although the response to B6 (indicating that educators believe a learner who behaves badly can be a learner who is experiencing barriers to learning letters and numbers) was more positive, this question had the highest percentage of negative responses, i.e. 24,6% ($n=114$). The highest positive responses of all attitude questions (89,6%, $n=115$) was for Question B15, where educators indicated that they would use extra learning aids to support a learner who was experiencing difficulty in learning the names of letters and numbers.

4.4.5 TOTAL ATTITUDE SCORE OF COMPONENTS (INTENSITY MEASURE)

The total attitude scores of the three components were determined as described in Chapter 3 and are displayed in Table 4.13. The differences between the three respective components were significant ($p < 0,0001$).

Table 4.13: Total attitude scores

Component	<i>n</i>	Mean	SD
Gross motor	109	72,9	13
Fine motor	110	82,7	9
Cognitive	111	84,7	10
Total	109	80,0	10

Pearson correlation coefficients were computed to determine the relationship between gross-motor knowledge and gross-motor attitude, between fine-motor knowledge and fine-motor attitude, and between cognitive knowledge and cognitive attitude. The relationships were weak: r 0,17 and 0,14 and 0,18 respectively, meaning that if knowledge increased there was no change in attitude.

4.4.6 ATTITUDE IN RESPECT OF CONTEXTUAL FACTORS

A question pertaining to educators' attitude towards contextual factors that might directly or indirectly impact learners was asked in B12 and is reflected in Table 4.14.

Table 4.14: Attitude towards contextual factors

I believe the following can be reasons why learners experience barriers to learning:					
Contextual factor	<i>N</i>	1	2	3	4
Financial problems	96	42,7	15,6	16,6	25,0
Poor health	105	9,5	7,6	23,8	59,1
Family problems	100	14,0	9,0	23,0	54,0
Slow development	112	4,5	8,0	19,6	67,9

It is apparent that slow development obtained the highest positive score in respect of this question and that educators did not consider financial problems to be contributing to barriers to learning.

4.4.7 ATTITUDE MEASURED ON INFERRED ASPECTS (INTENSITY MEASURE)

Each attitude question inferred attitude from responses that could be affective, behavioural or cognitive. The questions inferring attitude from affective responses start with words such as *"I enjoy"* or *"I get irritated"*. The four questions inferring attitude from cognitive responses started with the words *"I believe"*. Questions inferring educators' behavioural intent towards learners with barriers to learning started with word such as *"I will often"*.

The number and the mean of each aspect from which attitude is inferred are indicated in Table 4.15.

Table 4.15: Educators' scores on inferred aspects

	<i>n</i>	Mean
Cognition	110	78,4
Behaviour	110	82,5
Affect	112	77,1

The difference in attitude between behaviour and cognitive aspects was significant ($p=0,0157$). The differences between attitude behaviour and affective aspects, and between affective and cognitive aspects were not significant, namely $p=0,1448$ and $p=0,8482$.

4.4.8 ATTITUDE MEASURED (MULTIPLE-CHOICE QUESTIONS)

In these questions educators had to indicate the strategies they employed in their classes. Questions were asked about **difficult behaviour**, **cognitive barriers** and **fine-motor barriers**. In all three questions educators could write down their own strategy if their strategy was not offered as an option. More educators used positive teaching strategies for cognitive delays (see Table 4.16).

Table 4.16: Positive teaching and management strategies (n=117)

	%
Difficult behaviour (A17)	42,7
Visual-perceptual barriers (A18)	65,0
Fine-motor barriers (A19)	44,4

Although 50 educators (42,7%) indicated that they employed positive strategies to manage learners with **difficult behaviour** (cannot sit still in class, fidgety), 25 (21,4%) indicated punishment of this behaviour by expecting prolonged sitting. Of the other options offered, 88,9% (n=24) were positive strategies. These included strategies such as: giving more challenging work or giving more responsibilities, such as making the learner class captain (51,8%, n=14) or placing learners closer to the educator (18,5%, n=5). Inappropriate or negative responses included reprimanding and sending learners outside (7,4%, n=2) or putting them among others so that they could not move freely (3,7%, n=1).

Regarding positive teaching strategies for learners with **fine-motor barriers** (write too slowly), 44,4% (n=52) of the educators chose the correct option, namely that they would explore the cause of *why* learners were writing too slowly (Table 4.17).

Table 4.17: Strategies educators use for learners experiencing fine-motor barriers

Option	n	%
Expect learners to complete tasks after school in their own time.	29	25,8
Punish them for their behaviour and expect of them to stay behind after school or during break.	2	1,7
Demonstrate the same instruction until they understand.	25	21,3
Try and determine the reasons why the learner is working too slowly.	52	44,4
Ignore the fact that the learners never finish their work.	0	0
More than one option chosen	3	2,6
Other options	6	5,1

None of the educators indicated that they would ignore the fact that learners did not finish their work. Of the other options offered, four were positive, such as giving extra time, giving extra tasks, giving support after school or motivating the learner.

The correct option regarding positive teaching strategies for managing **cognitive barriers** was chosen by 65,0% ($n=76$) (see Table 4.18).

Table 4.18: Strategies for learners experiencing cognitive barriers

Option	<i>n</i>	%
Repeat the same instructions until the learner understands.	17	14,5
Ask the learner to stay after school and repeat the instructions in the same way.	10	8,6
Try different ways of explaining the same concept.	76	65,0
Other options	14	12,0

All of the other options offered were positive and included strategies, such as the use of associations to learn letters, e.g. “using a fist to remember how to write a ‘b’ and ‘d’”, “write letters in sand” or “use counters and flash cards”.

4.4.9 ATTITUDE (OPEN-ENDED QUESTIONS)

The aim of the open-ended questions was to determine educators’ personal opinions regarding their attitudes towards learners with barriers to learning in their classroom. The questions also elicited information on how they managed these learners and how they determined their specific needs for training. The open-ended questions were preceded by a question where educators had to answer *Yes/No* to an attitude question to determine attitude regarding gross-motor, fine-motor and behaviour support. The results are indicated in Table 4.19.

Table 4.19: Responses to Yes/No options in questions O1, O2 and O3

Q Nr	Question	<i>n</i>	Yes %	No %
O1	Believe that clumsy learners should be supported in mainstream.	116	67,2*	32,8
O2	Believe that educators need special training to support learners who have difficulty in acquiring visual-perceptual skills.	117	78,6*	21,4
O3	Get irritated when they have to repeat instructions to learners who struggle to write properly.	117	28,2	71,7*

* Reflect positive attitude

The respondents who indicated a positive attitude were asked to elaborate on their actions or needs. The answers were grouped together according to the sameness of the responses as seen from examples in Tables 4.20 to 4.22.

Regarding the support of learners with gross-motor delays, 3,9% ($n=3$) of the participants responded that they would use gross-motor tasks, such as jumping, ball-throwing or walking on a rope to support clumsy learners (Table 4.20).

Table 4.20: Educators' support of learners with gross-motor delay ($n=77$)

Group	Examples of answers	<i>n</i>	%
Will give extra tasks: general tasks	<ul style="list-style-type: none"> • Repetition • Remedial • Extra classes 	18	23,4
Will give extra task: fine-motor tasks	<ul style="list-style-type: none"> • Give extra writing tasks • Practise how to handle a pen • Colouring, finger training 	18	23,4
Inappropriate answer	<ul style="list-style-type: none"> • Learner needs inclusive education • Mixing with others • Help him/her 	12	15,5
Will simplify tasks	<ul style="list-style-type: none"> • Give tasks on their level • Group learners according to their pace 	7	9,0
Will give extra time to finish tasks	<ul style="list-style-type: none"> • Extra time to finish task • Learner to stay after school to finish task 	6	7,8
Will give emotional support	<ul style="list-style-type: none"> • Encourage them to accept themselves • Learner need love and support • They must not feel different 	4	5,2
Will use remedial aids	<ul style="list-style-type: none"> • Use tape recorder • Answer verbal • Use picture so learner can understand and be motivated 	4	5,2
Will give extra gross-motor tasks	<ul style="list-style-type: none"> • Give handiwork like woodwork or modelling • Walk on a rope • Activities such as jumping, ball throwing 	3	3,9
Will refer to SBST or DBST	<ul style="list-style-type: none"> • Ask support from DoE • Refer to SBST after doing few tasks • Refer to occupational therapist 	3	3,9
Will involve parents	<ul style="list-style-type: none"> • Parents meeting after extra work were given 	2	2,6

All the other responses given to support learners experiencing gross-motor delay were either focused on fine-motor tasks, were too vague or inappropriate.

Table 4.21 indicates the kind of training educators would like to receive.

Table 4.21: Educators' training needs (n=87)

Group	Examples of answers	n	%
Training to be able to support learner	<ul style="list-style-type: none"> • How to use remedial work • Handle learner with writing difficulty • Learn how to educate learners that cannot spell, read without skipping a word 	33	37,9
Inappropriate	<ul style="list-style-type: none"> • Braille training • Give homework 	23	26,4
Training to be able to identify	<ul style="list-style-type: none"> • Find out problem of learner • See eye problems 	11	12,6
Vague training needs	<ul style="list-style-type: none"> • Training on visual perception • Making "practicals" with learners • How to help a child to remember 	20	23,0

There were 37,9% (n=33) who indicated that they would like training on how to support learners and 12,6% (n=23) on how to identify delays. Unfortunately, nearly half of the responses were inappropriate or vague, such as "braille training" or "get to know them better". None of the responses were specific regarding frequency, level of training, method of training or specific topics.

The responses of how educators react when they get irritated were grouped as indicated in Table 4.22. Some of the educators (33,3%, n=11) responded that they changed the way they present the instructions. Some of the suggestions for changing the presentation were: "to hold the child's hand in guiding writing", "to demonstrate the actions herself" or "to stay after school to help the learner".

Table 4.22: Educators' reactions when irritated (n=33)

Group	Examples of answers	n	%
Change presentation/instruction	<ul style="list-style-type: none"> • Hold learners hand and show to help • Stay after school and teach individually 	11	33,3
Exhibit negative behaviour	<ul style="list-style-type: none"> • Become angry and shout. • Ignore them and let them write whatever. 	9	27,3
Inappropriate answers	<ul style="list-style-type: none"> • Ask them what is required of them 	6	18,1
Change own behaviour	<ul style="list-style-type: none"> • Talk slowly • Leave him for while and call later back to table 	5	15,2
Use the same presentation/instruction	<ul style="list-style-type: none"> • Repeat instruction until learner understand 	2	6,1

Negative behaviour, such as becoming angry, shouting or ignoring, was indicated by 9 (27,3%) of the 33 educators (Table 4.22). One educator verbalised her attitude as follows: "Sometimes I shout or yell. Which I know deep down in my heart is wrong but due to frustrations I often do that particularly if I have many children in my class." There were two worrying responses: "I ignore them and let them write whatever" and "I will repeat several times if still struggling I get tired and show to those who are able to see things correctly". Although educators were not asked to say whether they did indeed get irritated, one educator did however respond: "No, I like to help each of the learners. I know he/she is here for me. I must help them."

4.5 Relationships between results

The relationships determined in this study were between training, experience, knowledge and attitude. The researcher also considered the relationship between the educators' ability to describe components (gross motor, fine motor and cognitive) and their attitudes. Results will be presented in this sequence.

4.5.1 RELATIONSHIP BETWEEN TRAINING AND KNOWLEDGE AND BETWEEN TRAINING AND ATTITUDE

Training was categorised in three groups because of the small number of respondents in the subgroups and this was done as follows: all educators with Standard 8 and training (two or three years), those with Standard 10 and training (two, three or four years) and those with BEd degrees.

Table 4.23: Knowledge and attitude scores grouped according to type of training

Year Group	Observations	Variable	<i>n</i>	Mean %	Min %	Max %
Std 8	25	Knowledge	25	27,7	6,7	60,0
		Attitude	22	76,7	41,7	93,5
Std 10	76	Knowledge	76	27,5	0	66,7
		Attitude	71	80,0	60,1	95,2
Bed	15	Knowledge	15	31,1	6,7	66,7
		Attitude	15	85,3	67,1	100,0

It was evident that as years of training increased, attitude likewise improved ($p=0.0321$). As depicted in Table 4.23, no relationship was evident between training and knowledge ($p=0.7075$).

4.5.2 RELATIONSHIP BETWEEN EXPERIENCE AND KNOWLEDGE AND BETWEEN EXPERIENCE AND ATTITUDE

The demographic information yielded information regarding years and months of experience in both Grade 1 and Foundation-phase teaching. The relationship between this information and the knowledge and attitude scores was determined and this is depicted in Table 4.24.

Table 4.24: Correlation between experience in teaching, knowledge and attitude

	Knowledge (total)	Attitude (total)
Grade 1 teaching (months)	0,06	0,02
Foundation-phase teaching (years)	0,04	0,14

There were no correlations between experience and knowledge or experience and attitude.

In determining the association between when training was completed and knowledge and attitude, the sample was clustered into groups of 10 years. The total knowledge and attitude scores of the clusters are displayed in Table 4.25.

Table 4.25: Knowledge and attitude scores, grouped according to cluster of years in which training was completed

Year group	Observations	Variable	<i>n</i>	Mean %	Min %	Max %
Up to 1980	25	Knowledge	25	30,4	6,7	66,7
		Attitude	23	78,3	41,7	100
1981 to 1990	37	Knowledge	37	26,8	0	66,7
		Attitude	33	82,8	63,1	95,2
1991 to 2000	35	Knowledge	35	29,0	0	66,7
		Attitude	34	78,8	60,1	95,2
2001 +	15	Knowledge	15	27,1	6,7	60
		Attitude	14	80,8	68,4	94,0

The highest knowledge mean score (30,4%) was obtained by the group who completed their training before or up to 1980. No associations were found between these groups and knowledge ($p=0,8261$) or attitude ($p=0,2785$).

4.5.3 ABILITY TO DESCRIBE COMPONENTS VERSUS ATTITUDE

In Part A, educators were asked to describe delays in performance skills (gross motor, fine motor and cognitive) and in part B they were asked whether they were positive about their ability to identify delayed performance skills correctly. The results are reflected in Table 4.26.

Table 4.26: Skills and ability to identify delayed skills

	Able to describe correctly and being positive		Unable to describe correctly and being positive	
	<i>n</i>	%	<i>n</i>	%
Gross motor	19	27,1	34	48,6
Fine motor	42	57,5	18	24,7
Cognitive	29	37,6	34	44,1

The results indicate that a positive attitude did not lead to the ability to describe components correctly.

4.6. Reliability of questions

To determine the reliability of the questions, three questions were asked in different ways. The questions were:

- a). *“When a Grade 1 learner enters school he/she should be able to tie shoelaces”* (A15); and, *“A Grade 1 learner should be able to perform the following motor tasks: tie shoelaces”* (A5). The correct and incorrect responses are indicated in the 2 X 2 Table 4.27.

Table 4.27: Percentage of correct and incorrect answers to questions: ability to tie shoelaces

		A Grade 1 learner should be able to perform the following motor tasks: tie shoelaces (A5).	
		Incorrect	Correct
When a Grade 1 enters school he/she should be able to tie shoelaces (A15).	Incorrect	n=7 6,0%	n=17 14,5%
	Correct	n=9 7,7%	n=84 71,8%

It was noted that 77,8% (n=91) had either both incorrect or both correct but a Kappa coefficient revealed a weak (0,22) relationship between these two answers.

- b). *“When a Grade 1 learner enters school he/she should be able to write his/her name in cursive”* (A15); and, *“A Grade 1 learner should be able to perform the following motor tasks: write his/her name in cursive”* (A5). The correct and incorrect responses are reflected in the 2 X 2 Table 4.28.

Table 4.28: Percentage of correct and incorrect answers to questions: cursive writing

		A Grade 1 learner should be able to perform the following motor tasks: write his/her name in cursive (A5).	
		Incorrect	Correct
When a Grade 1 learner enters school, he/she should be able to write his/her name in cursive (A15).	Incorrect	n=4 3,4%	n=2 1,7%
	Correct	n=4 3,4%	n=107 91,5%

Table 4.28 makes it evident that 91,5% of the educators answered both questions correctly. A Kappa coefficient showed a strong relationship between the answers of these two questions and can therefore be considered to be reliable.

- c). *“When a Grade 1 enters school he/she should be able to indicate the left and the right hand of the educator” (A15); and, “A Grade 1 learner at the end of the year, should be able to recognise and name the following: the left hand of the educator” (A13).* The correct and incorrect responses are displayed in the 2 X 2 Table 4.29.

Table 4.29: Percentage of correct and incorrect answers to questions: recognise left and right on the educator

		A Grade 1 learner at the end of the year should be able to recognise and name the following: the left hand of the educator (A13).	
		Incorrect	Correct
When a Grade 1 enters school he/she should be able to indicate the left and the right hand of the educator (A15).	Incorrect	n=19 16,2%	n=10 8,6%
	Correct	n=58 49,6%	n=30 25,6%

From the results in Table 4.29 it is evident that only 30 educators (25,6%) answered both questions correctly.

4.7 Conclusion

The results obtained in this cross sectional study were presented in this chapter. Results were tabulated, depicted in graphs and described. Where applicable, relationships between variables were determined and described. The chapter was concluded by describing the reliability of three questions, each of which was repeated using slightly different wording. The results will be discussed in the next chapter.

CHAPTER 5

DISCUSSION

5.1 Introduction

The White Paper 6 defines inclusive education, *inter alia*, as “uncovering and minimising barriers to learning” (SA, 2001:7). Barriers can only be uncovered if they can be identified. This research explored educators’ ability to identify the age-appropriate developmental skills of Grade 1 learners. Learners who are experiencing delays in respect of these skills and those experiencing barriers, can then be identified early, and through early intervention the impact of the barriers on learners’ development can be overcome or minimised (DoE Ten, 2003; SA 2009(b):49; UNESCO, 1994:ix). Research suggests that educators’ attitudes to the needs of learners may be the determining factors regarding whether or not these learners will succeed (Kuester, 2000). The attitudes of educators regarding learners with barriers to learning were determined in this study. In this chapter, the results obtained are to be discussed and interpreted. After considering the limitations and reflecting on the study, the discussion will follow the same sequence as that followed in Chapter 4. The necessary recommendations and suggestions will also be made. The chapter will conclude with recommendations and suggestions aimed at guiding further/future interventions.

5.2 Limitations of study

Several weaknesses and limitations were identified:

- Time constraints – as previously mentioned, time constraints forced the researcher to have the questionnaires completed in a group setting and not individually as had originally been planned. It is believed that individual completion of the questionnaire may have produced somewhat different results in that educators would have felt free to use the

translated copy and to ask the researcher about uncertainties that they might have experienced regarding the phrasing of questions.

- When visiting schools, district personnel (occupational therapists included) are often seen as officials from the Department visiting the schools to check on educators' performance. Educators could therefore have felt obliged to give positive answers because they were the correct answers – even if these were not necessarily a true reflection of how they really felt.
- Although great effort and considerable care were invested in the development of the questionnaire, the validity of the questions should be determined by also consulting other occupational therapists working in school settings.

5.3 Reflection on questionnaire and data gathering

Although many hours were spent both on the development of a well-designed questionnaire and the execution of a well-planned pilot study, there were nevertheless some shortcomings. The following suggestions are made with a view to refining the questionnaire for future research:

- Although it is reasonable to expect respondents to be able to read a questionnaire correctly, improvements in respect of the layout could facilitate not only its completion but also correctness. In this questionnaire this could have been done by the following:
 - Have questions with more than one option in one group, and those with only one option in another – such as the questions on the identification of pencil grip. This problem of educators tending to get confused with the marking of *one* or *more than one* option did however not surface in the pilot study.
 - Have the date and date of birth in the same line to indicate that they are two *different* dates or, alternatively, date the questionnaires beforehand.

- Reliability questions: one of the questions regarding reliability could not be used because of its wording. With a view to ensuring reliability, more care should be taken that questions have the same meaning.
- The pilot study did not include any participants who had been trained generically for primary school. During the completion of the questionnaire, eight such educators participated in the study and an additional block had to be added to the questionnaire to accommodate this group.
- Questions A5 and A 15 included information regarding gross-motor, fine-motor and cognitive skills in one question. By having separate questions for each concept, more useful information could have been obtained.
- Question B12, dealing with the contextual factors, should have been a separate question before the section of intensity measure questions, since the educators seemed to have been uncertain about the ticking of this question.
- In the reflection section, the researcher should have included a space for educators to relate their experiences with learners with delay, both in the classroom and outside of the classroom. Research indicates that educators with experience of supporting learners in their classes displayed significantly more positive attitudes towards such learners than did those educators who had not previously had similar experiences (Avramidis, Bayliss & Burden, 2000:200).

The translated copy was used by very few educators. The researcher deduced that educators were hesitant to make use of the translated copy, probably thinking that it could indicate that they were not fluent in English. Ideally each educator should have been provided with a translated copy.

No information regarding the use of visually cued questions could be found. When presenting workshops, the researcher often uses visually cued questions in pre-and post-testing, because they are language free and 'a picture is worth a thousand words'. Research regarding the reliability and validity of such

questions will be worthwhile since the results can be used in the compilation of language-free surveys or assessments.

5.4 Reliability of questions

As described in sections 3.5.2 and 4.7, three questions were asked twice but were each differently phrased the second time around. The results obtained indicated that only one set of questions was reliable where 91,5% ($n=107$) answered both questions correctly ($r=0,54$). These questions dealt with Grade 1 learners' ability to write in cursive and can be considered to have been an easy and general question and this could therefore have contributed to the high percentage of correct answers.

The first two sets of questions started with *"When a Grade 1 learner enters school..."*, and, *"A Grade 1 learner should be able ..."*. The last set of questions started with: *"When a Grade 1 enters school ..."*, and, *"A Grade 1 learner at the end of the year ..."*. A timeline can be read into all of these questions. The educators could have interpreted this as meaning a time in which the learner could have developed the skills and may thus not have considered the meaning of the question to be the same. Consequently, the researcher does not consider these questions to have been an appropriate measure for determining the reliability of the questionnaire.

Strategies/aspects that the researcher implemented to increase reliability and to minimise research bias were:

- Performing a thorough pilot study to develop a questionnaire that would be valid, understandable and easy to execute.
- Using a dispensing script to assure that all educators received the same information prior to completing the questionnaire.
- Translating the questionnaire into Sesotho.

There was only one knowledge question in which only one educator did not answer a question (Q 6). All of the other knowledge questions (excluding open-ended question, Q 16) were answered by all the educators ($n=117$). This high

number of fully completed questionnaires points to a thorough and meticulous completion of questionnaires, which contributed to reliability.

A retest can be used to determine the reliability of the measuring instrument, but during this research, when the educators completed attitude questions they were given the information regarding the three aspects, plates A, B and C, to increase the validity of the attitude questions. A retest was therefore not a viable option.

Despite the inclusion of several strategies to increase reliability, it is nevertheless difficult for the researcher to decide whether the questionnaire was indeed reliable. Since a retest is not a viable option in these circumstances, it is suggested that questions should be phrased in such a way that they would have exactly the same meaning so that the answers can be used statistically to determine the reliability of the questions.

5.5 Description of sample

As reflected in Table 4.1, there was a wide spread, both in respect of educators' **age**, (from 30,8 to 59,8 years) and years of **experience**, (one month to 34 years). This spread not only ensures that the education system will benefit from the experience of older educators, but also that there is an influx of younger educators who have the potential to introduce innovative ideas. It was however noted that the youngest educator was older than 30 years and ten educators had completed their studies since 2002. This indicates that educators completed their studies later in life. The only other study the researcher could find that indicated the years of teaching experience was the SACMEQ study (a South African project to study the conditions of schooling and the quality of education), which describes Grade 6 educators (SACMEQ, 2005:105). In the SACMEQ study, the mean for the years of experience of Grade 6 educators was 14,2 and 13,7 years. It is then evident that the study sample of the present study had a higher mean average – 16,6 years in Foundations Phase, according to Table 4.1 – for teaching experience than the SACMEQ study. The researcher therefore considers

the educators in the present study to have had sufficient experience and that they should therefore have obtained enough classroom experience.

It was observed that only 81,2% ($n=95$) of the educators had filled in the date of birth. The reason for this can be that they had preferred not to disclose their age or that the questionnaire layout had led them to skip that specific question: between the question for dating the questionnaire and the date of birth question there was one other question where they had to tick a block. Educators could have perceived the second question as duplication and therefore have skipped this specific question.

Regarding the **date of training**, it was observed that nearly half of the population (47,3%, $n=53$) had completed their qualification before 1989. Before 1994 the training of educators in South Africa was done by the 19 different departments of education that were segregated along lines of ethnicity and race. There were huge disparities in terms of the quality and duration of training. After 1994 the new government undertook to rationalise educator education and make it more equitable, cost-effective, relevant, and of a high quality (Monyooe, 2005:11). Consequently, approximately 100 of the 150 training facilities were phased out (Chisholm, 2004:7) and educator training is now left to institutions of higher education, such as universities where Grade 12s who meet the entrance requirements of these institutions can embark on a four-year learning programme to qualify as an educator (SACMEQ, 2005:6). Only three educators from the sample had qualified since implementation of the new learning programmes. It was also observed that the frequency in respect of educators trained, gradually decreased from 17,0% ($n=19$) between 1991 and 1995, down to a low of 5,4% ($n=6$) in the past five years. This confirms the concern of the DoE (2009) that there is a marked decrease in educators completing training. This decrease can be due to the fact that student-teachers' Grade 12 results must meet certain standards in order for them to qualify to study at a university. The Government is exploring the option of expanding the provision of educator training and are considering the re-opening of teachers' training colleges since it is open to conjecture that primary school educators do not need university

education (NAT, 2008). The researcher noticed, during school visits in Motheo, that educators are allocated to schools according to the number of learners in schools and that SGBs can decide on the allocation of these educators. Because schools tend to opt for smaller classes in the senior primary classes – where subject teaching is done – this leads to bigger Foundations Phase classes. It would then seem that although the opening of the training colleges could eventually lead to more primary school educators being trained, the schools will only benefit from this if Foundation Phase educators' posts are considered as critical, are advertised and filled, and more equal educator distribution is implemented.

Student educators receive **phase-specific training**: students choose from their first year to be trained either in Foundation Phase (Grade R to Grade 3), Intermediate phase (Grade 4 to Grade 7) or Senior Phase (Grade 8 to Grade 12). This is because of the difference in curriculum content and the specific mode of presentation required for each of the different phases. It was therefore encouraging that 80,5% ($n=91$) of educators in this study indicated that they had been trained to teach in the Foundation Phase (Table 4.3).

In this study population, 71,8% ($n=84$) had Standard 10 (Grade 12) and at least three years of **basic training** (Table 4.4). The researcher could not find any other study describing the basic training of Grade 1 educators in South Africa. The SACMEQ study, in which the study population comprised Grade 6 educators, established that reading and mathematics educators both had a mean of 3,2 years of basic training. The numbers of the study population were not available (SACMEQ, 2005:103-104). It would seem that the basic training of the present study population compares favourably with that of the SACMEQ study.

In 2002, a task team from the Teacher Development Directorate of the Department of Education did an audit to determine the academic qualifications of educators in South Africa. They considered educators to be unqualified or underqualified if they only had one, two or three years' training post-standard 10 (Grade 12). The results of that research indicated that 40% of educators were unqualified or underqualified. Indications are that only 18% of educators

working in 2009 were professionally qualified degree graduates. It is estimated that this percentage constitutes more than 100 000 educators in South Africa who need to be reskilled (ELRC, 2009:84-91). Unfortunately, the Department of Education did not indicate the number of educators in their sample. Spreen and Fancsali (2005) argue that educators' quality cannot be measured by the years of training, but that each educator should be understood as an individual within the context in which he/she works. It then seems that there are many variables to be considered when discussing educators' qualifications. The aim of this research was not a critical analysis of Grade 1 educators' training, but to determine whether there was an association between training and knowledge, and between training and attitude. The researcher was thus interested only in the number of years spent on formal training. The fact that so many educators in South Africa are considered as either unqualified or underqualified is however cause for concern. Various research studies, although from other countries, have indicated that there is a relationship between education level and efficacy (Hoy & Woolfolk, 1993:367), between educators' knowledge and learner achievement (Spreen & Fancsali, 2005:15) and between educators' training and their attitudes (Avramidis *et al.*, 2000:207). Although it was not the aim of this research to consider educators' efficiency and learner achievement, the small percentage of qualified educators standing in front of our learners is worrying and could potentially contribute to the poor reading and writing skills apparent in our learners. It therefore stands to reason that the occupational therapist will have to mould her support and training around educators' baseline knowledge.

Post-basic training was completed by 81 (71,0%) of the educators, but only 15 (18,5% of this group) received training in either Support or Inclusive Education. As part of the researcher's clinical experience, she lectured on *early identification of motor and perceptual barriers* to the Inclusive Education Honours (previously called Support) students at UFS. According to the students who attended these lectures, the information presented was new and had not been part of their basic training. There were 29 educators (35,8%) who did their Honours in management, curriculum studies or political studies. The researcher's observations revealed that these courses, specifically management, look good on

a CV if a person is aspiring to be appointed in management positions, such as subject advisor or school management posts. The low number of educators being trained in Inclusive Education or Support and the fact that no one is currently busy with Inclusive studies, are disappointing since the success of Inclusive Education relies heavily on the support of learners with disabilities in ordinary schools, and educators need to be trained properly to enable them to provide effective support.

Only recently (February 2009) did the DoE in conjunction with the South African Council for Educators (SACE) indicate that it would implement continuous professional teacher development (CPTD). In terms of this measure, educators will be required to attend training courses and/or professional development activities with the aim of earning professional development points, and thereby retain SACE registration (SAOU, 7/2009). Post-1994, there has been much focus on in-service training for educators to introduce the new outcomes-based curriculum and to build capacity in key subject areas such as mathematics and science. With the implementation of Inclusive Education (since 2004), a whole new window of opportunity has been opened regarding educator training. Educators need to be empowered with specialised training, skills and competencies to be able to address the needs of learners with barriers to learning (Monyooe, 2005:10). It is in this current vacuum that the occupational therapist, at the district level, should play an integral part because this professional has specialised knowledge regarding learners' different occupational roles and the influence of contextual factors. The training that the occupational therapist provides to educators should be considered for CPTD accreditation to encourage educators to attend such training.

The average **class size** was 42 learners. The smallest class (one class) had 21 learners and the largest class had 67 learners (two classes). A worrying trend observed was that 19% of the classes had 50 or more learners per class, which correlates with the results of the SACMEQ data (Van den Berg, 2005). Research conducted in California to determine the effect of classroom size reduction (CSR) found that with reduced numbers of learners in the classes, educators were more

prone to know what students could and could not do (Bohrnstedt & Stecher, 2002:7) One of the core functions of the occupational therapist at the district level, is to empower educators to identify and support learners with barriers in their classes. It is doubtful whether any educator will be able to identify a learner with delayed development in a class of 60 learners, let alone give extra support to one or two learners who are experiencing barriers, whether motor, cognitive, behaviour or emotional.

It is therefore evident that educators have a challenging task to implement the curriculum with large number of learners in a class and while hampered by limited resources. It also seems that the training student educators receive does not equip them to identify and support learners with barriers to learning. A further complicating factor is uncertainty regarding how and when inclusion will be implemented, which also serves to demotivate educators. To even further complicate matters, the Minister of Basic Education, Ms Motshekga, on 6 July 2010 announced considerable changes to both the curriculum and its presentation (DoE, 2010(b)). This statement causes additional uncertainties and will have numerous and serious implications for many stakeholders, such as the financial and time implications in respect of retraining educators. Schools have limited time set aside for in-service training and this change in curriculum will take precedence over other training, which will in turn leave Inclusive Education officials without a window of opportunity to intervene with training and support.

5.6 KNOWLEDGE

5.6.1 KNOWLEDGE OF GROSS-MOTOR AND RELATED SKILLS

Gross-motor development provides a solid foundation for the development of more intricate fine-motor skills (Amundson, 2005:598–603). Through discussions with educators and LSFs, the researcher however realised that educators have limited knowledge regarding motor skills and specifically regarding gross-motor skills. It was therefore decided to use mostly observable skills, such as good posture at a table, which will be apparent in the class situation when assessing gross-motor and related components. Other aspects to

influence the type of questions incorporated in the questionnaire were gross-motor and related skills that can/will influence fine-motor performance such as muscle tone. To measure the observable aspects (posture, appropriate table height and midline crossing, the researcher used visually cued questions, asking the visual identification of appropriate skills as an alternative to written questions.

5.6.1.1 Visually cued questions: knowledge regarding posture, table height and midline crossing

Nearly all the educators (98%, $n=117$) could identify good sitting posture and 66,7% ($n=117$) could identify appropriate table height. The fact that a very low percentage of educators, i.e. 37,6%, ($n=117$) could identify midline crossing in a visually cued question, is cause for concern in that midline crossing can influence the development of fine-motor skills of the writing hand (Bishop, 2005:363), it can result in directional confusion that often manifests in 'b'/'d' reversals (Knickerbocker, 1980:59), and non-fluent reading, resulting from jerky eye movements (Kephart, 1977:92; Knickerbocker, 1980:58). Tasks and activities with midline crossing are often included in occupational therapy programmes; occupational therapists need to make sure that educators (and parents) have knowledge regarding the developmental importance of midline crossing when midline-crossing activities are included in a programme. The researcher believes that when educators (and parents) recognise the importance of midline crossing in the child's development, this will not only improve the quality of the execution of the programme activities but also lead to a more religiously correct execution of occupational-therapy programmes.

5.6.1.2 Knowledge: muscle tone

In a classroom, learners with poor muscle tone can be identified when they are slow, do not concentrate, fidget constantly, have poor sitting posture at the desk, and have poor pencil grip resulting in poor handwriting (Kurtz, 2007:59). The results clearly indicated muscle tone to be a rather unknown entity to educators that only 5,13% could identify correctly. Muscle tone was not asked with the aid of a visually cued question (requiring educators to identify a learner with poor

muscle tone from a picture) because poor muscle tone can easily be confused with poor posture. The researcher realises that muscle strength, anti-gravity movement, dynamic patterns of co-contraction (muscle tone) and mature postural reactions all have an integral part to play in the development of postural control (Nichols, 2005:278). The researcher wanted to use the results of this research to lay a foundation for possible future training. It was thus decided to use only muscle tone since it is one of the aspects influencing postural control, and intervention strategies can easily be adapted and used in the class situation. The occupational therapist will however consider the underlying aspects in the development of strategies and activities for postural preparation activities. It is also important that the therapist should be able to explain to the educator the rationale for intervention strategies that may seem unconventional, for example “making popcorn” – jumping up and down in their seats while holding on to the sides of the chairs. It is thus clear that the importance of the effects of low muscle tone and other underlying factors and intervention strategies should both be included and emphasised in the training of educators.

5.6.2 KNOWLEDGE OF FINE-MOTOR AND RELATED SKILLS

Early developmental fine-motor skills, such as threading beads or tying shoelaces, provide a solid foundation on which more and more intricate skills, such as writing, can be built. When writing skills are fully developed, the learner can focus on the content of writing and speed of writing rather than on the mechanics of writing – grasping a pencil, staying between the lines, letter formation and spacing.

5.6.2.1 Knowledge: pencil grip

Knowledge regarding pencil grip was determined by means of a multiple-choice question and a visually cued question. In the visually cued question, educators were required to identify three correct pencil grips from among the possibilities offered by the six photographs. Only 11 (9,4%) indicated **all** three of the correct pencil grips. The question on pencil grip, the last question of Part A, followed directly after three visually cued questions requiring educators to choose **one option**. In this last question on pencil grip, for the answer to be considered as

correct, the educators were required to identify **all the correct options**. The researcher suspects that educators could have misread the instruction because they were in a hurry and wanted to finish the questionnaire. From these results it was deduced that educators have a better knowledge of pencil grip than the total score for pencil grip would lead us to believe. This good knowledge can be due to the fact that pencil grip is a concept with which they are daily confronted and about which they are thus knowledgeable.

5.6.2.2 Knowledge: copying shapes

The copying of shapes determines the learner or a person's abilities in respect of integrating visual and motor abilities (Beery & Beery, 2006:14), and is considered to be a skill that precedes writing skills. It is not only a measure of fine-motor control, but also of form and space perception (Bleck & Nagel, 1982:123). One of the intervention strategies for improving handwriting is drawing shapes (Honaker, 2002:4). For the purposes of this study, the researcher considered the ability to draw the shapes only to be a measure of fine-motor control. Comparatively few (32,5%, $n=38$) educators were able to identify the correct shapes that Grade 1 learners should be able to copy.

Beery (and other non-standardised screening tools) describes the developmental sequence for copying shapes as circle, square, cross and then triangle (Beery & Beery, 2006:32-44). When counting the number of ticks for each shape in the present study, the researcher observed educators' sequence to be circle and triangle both first, followed by the square and then the cross. The fact that educators consider the copying of the circle and triangle as equally difficult is somewhat worrying in that there is a more than two-year difference between being able to copy a circle and being able to copy a triangle (Beery & Beery, 2006: 32-44).

5.6.2.3 Knowledge: hand preference

The relative high percentage (67,2%, $n=78$) of educators who knew that hand preference should be established by school-going age is comforting. In educators' training the occupational therapist should emphasise the importance of the development of hand preference before the learners enter Grade 1 because of

accompanying delays such as poor fine-motor development (because of limited preferred-hand practice) and confusion in respect of directionality (Knickerbocker, 1980:43-59).

5.6.2.4 Final remarks regarding fine-motor skills

It is important for educators to have knowledge of how to identify learners who are most likely to be at risk of fine-motor problems. Research has shown that learners show significant improvement in their fine-motor skills if they have opportunities to practise these skills (Dankert, Davies & Gavin, 2003:547; Nichols, 2005:287). The scores obtained in this part of the research will guide the researcher to assist educators in developing the skill of identifying possible fine-motor delays.

5.6.3 KNOWLEDGE OF VISUAL-PERCEPTUAL SKILLS

Although research regarding the effectiveness of visual-perceptual training produced different results (Hallahan & Mercer, 2001:19; Kavale, 1982:48; Palisano, 1989:92), research still backs the notion that perceptual development follows a pre-determined sequence during development (Schneck, 2005:413-426). It is believed that knowledge of and insight into how these skills form the building blocks on which scholastic tasks are built, can guide the educator to early identification of delays, assist them to apply appropriate intervention strategies, and it may also lead to the more thorough execution of (occupational therapy) programmes.

5.6.3.1 Knowledge: form perception

The results in respect of educators' knowledge regarding Grade 1 learners' ability to *name* and *identify* 3-D and 2-D shapes were 50,4% ($n=59$) and 53,0% ($n=62$) respectively. The NCS explicitly describes the 3-D and 2-D shapes the learners have to be able to recognise, identify, name, describe and compare. The fact that nearly half of the study population were not knowledgeable about the expected outcomes for Grade 1 learners in this regard triggers a siren as to educators' lack of knowledge of the NCS as a whole.

5.6.3.2 Knowledge: spatial concepts

The fact that 85,5% ($n=100$) of educators could identify 'b'/'d' reversal as a cognitive delay, can be indicative that educators did receive some training regarding possible visual-perceptual delays. The reference to 'b'/'d' reversals is an aspect they are exposed to in their classrooms and participants could therefore relate to this aspect. The poor results for knowledge regarding spatial concepts – 14,5% ($n=17$) gave the correct answer – and for knowledge of appropriate body parts – only 8,6%, ($n= 10$) gave the correct answer – lead the researcher to believe that although educators were generally able to identify 'b'/'d' reversals, the origin and broader effects thereof were not understood. During the training of educators attention must be devoted to the fact that learners must have knowledge regarding their own body and must have knowledge regarding spatial concepts before they will be able to differentiate between 'b' and 'd'.

5.6.3.3 Knowledge: ability to concentrate

Attention span is determined or measured by timing how long an activity can be pursued. The researcher is aware that, for real attention, the learner must respond appropriately to the command (for example if the educator instructs learners to copy the homework from the board, learner must not only attend, but also comply by copying the homework correctly). These questions only determined whether educators were knowledgeable about the appropriate time Grade 1 learners could realistically be expected to concentrate, and it is believed that those educators who did not know this (53,9%, $n=63$) would have unrealistic expectations of the learners.

Given the results obtained in this research, the researcher intends, in future, to focus not only on the identification of motor and cognitive delays during educator training, but also to inform educators to be aware of the fact that delays in cognitive and motor skills can also present as short attention span. The researcher will also sensitise educators to the contextual factors that may prevent a learner from concentrating – such as internal aspects (anxiety, feeling insecure or being hungry) or a non-conducive environment (learner not

receiving positive support or an environment that distracts). Most contextual factors can be directly or indirectly addressed in class situations.

5.6.4 TOTAL KNOWLEDGE

The poor scores regarding the identification of motor and cognitive skills are cause for concern. If educators are unable to recognise a typical developing learner, how will they be able to identify a learner with delays? The researcher could find no other research of educators' knowledge regarding gross-motor, fine-motor or cognitive skills and could therefore not compare these results with those of other studies. It is believed that this study will guide not only the researcher or other occupational therapists, but also policy makers in education to acknowledge that educators' lack of knowledge regarding gross-motor, fine-motor and cognitive delays is considerable and could contribute to poor scholastic performance and thus impact negatively on progression.

5.6.5 DESCRIBING AND IDENTIFYING GROSS-MOTOR, FINE-MOTOR AND COGNITIVE SKILLS

The educators' written responses contained misspelling and inappropriate words. This may be indicative of poor second-language skills. Since the questionnaire was in English, which was not the participants' home language, the researcher wanted to determine whether there was a significant difference between the educators' ability to **describe** in words what they understood about each concept, on the one hand, and their ability, on the other, to **identify** the correct answers by reading the possibilities and ticking the correct answers.

There was a significant difference between educators' ability to **describe** performance skills and their ability to **identify** them: educators were clearly better at **describing** the skill (Figure 4.3). The difference could be due to two facts: the researcher was lenient in marking the descriptions of concepts and did not penalise participants for either grammar or spelling mistakes. The difference could also be due to the fact that in order for the question regarding **identification** to be marked correctly, all the correct options (three for gross- and fine-motor skills and four for cognitive skills) had to be indicated.

It was further observed (Table 4.9) that there was a significant difference between educators' ability to **describe** gross-motor skills and their ability to **describe** fine-motor skills: educators were better at describing fine-motor skills. There was however no significant difference in their ability to **identify** gross-motor skills and their ability to **identify** fine-motor skills. Perhaps more educators were able to describe fine-motor skills because their basic training had included very little information regarding gross-motor aspects (G Myburgh, personal communication, 28 August 2008; Van Zyl, 2007). Writing skills are however part of Foundation Phase educators' basic training. Educators on a daily basis are more exposed to fine-motor skills than to gross-motor skills in their classes and this could also contribute to educators being more adept at describing fine-motor skills. The NCS, in the expected outcomes of Grade 1s, moreover describes gross-motor skills in vague, unfamiliar terms, using words like 'to locomote' or to 'balance or elevate' (SA, 2002(c):22). This particular result will also guide the development of future occupational-therapy training programmes for educators in that it indicates a need for attention to gross-motor skills to be presented in a coherent and relevant manner.

5.6.6 DIFFERENCE BETWEEN VISUALLY CUED QUESTIONS AND DESCRIBING

The rationale behind the analysis of visually cued questions (no words needed to answer question) and describing (requiring a written answer) was also to determine whether poor language skills could have contributed to the poor results (Section 4.3.7). The researcher could make no meaningful deductions regarding the fact that there were no significant differences between written responses and visually cued questions.

5.6.7 ABILITY TO IDENTIFY GROSS-MOTOR SKILLS VERSUS ABILITY TO IDENTIFY FINE-MOTOR SKILLS

The rationale behind the gross-motor questions was that if an educator could identify gross-motor delays, she would be able to apply appropriate intervention strategies. It was also assumed that if educators realised the importance of well-developed gross-motor skills for a Grade 1 learner, they would be more inclined to follow an occupational therapy programme for the development of gross-

motor delays. It was therefore disconcerting that only 12,0% ($n=14$) of the educators could correctly distinguish between gross-motor and fine-motor skills and even more alarming that 19,7% ($n=23$) chose all the wrong answers when indicating gross-motor skills (see Table 4.6). A further reason for concern was the type of answers given where the educator had to describe gross-motor delay, for example: *"Learner are slow to read and write in class"* or *"When a child cannot see very well and cannot see the Alphabet"*. These completely inappropriate answers suggest that educators did not even associate gross-motor skills with movement. In the planning of support packages – which can also include consultation or training of educators or programmes for learners developed by the occupational therapist that include gross-motor skills – the occupational therapist specifically should pay attention to the clear and concise explanation of gross-motor concepts and focus on the importance of well-developed gross-motor skills as a foundation for fine-motor skills. It is further important that, during support or training, the occupational therapist should relate the gross-motor delays experienced by a learner to other inabilities, such as poor muscle tone or poor pencil grip.

5.6.8 DESCRIBING ATTENTION DEFICIT AND HYPERACTIVITY

More educators (51,4%, $n= 56$), were able to describe hyperactivity than were able to describe attention deficit (35,1%, $n=38$). The higher score in hyperactivity is attributable to the fact that a learner who is hyperactive is more easily observed than a learner with attention deficit who can typically be a daydreamer.

The only research that could be found in the literature on knowledge of different conditions was an American study by Kessell, Wingenbach, & Lawver (2009:7) in determining student educators' knowledge in respect of attention deficit hyperactivity disorder (ADHD), blindness or visual impairment, learning disabilities, physical impairment, and mild mental handicap. Their study population of 409 participants were well-trained: 246 participants had or were taking their Bachelor's degrees, 14 had Master's degrees and the majority (159) had taken courses in Special Education. The results indicated that the student

educators were not knowledgeable about ADHD, mild mental handicaps, physical impairment, learning disabilities, blindness or visual impairment. They were considered to be marginally knowledgeable about deafness or hearing impairment and emotional disorders (Kessell, Wingenbach, & Lawver, 2009:7). It would thus seem that poor knowledge regarding the various conditions is also evident in other international populations.

In addition to the proven lack of knowledge among educators in South Africa, Prof Venter of UFS, as quoted in *Volksblad* (Rademeyer, 2010), warns the education authorities that soon a tsunami will engulf schools as a result of an influx of increased numbers of HIV/AIDS-positive learners on antiretroviral medication (ARV). These learners will constitute a challenge to educators because medication used to increase attention and manage behaviour is not effective when used in conjunction with ARVs. It would thus appear that the number of learners with attention deficit or hyperactive behaviour in classes will not only escalate, but the severity of the behaviour problems will also intensify.

South Africa's Inclusive Policy as set out in White Paper 6 requires "that learners experiencing barriers to learning [can] be identified early and appropriate support provided" (SA, 2001:24). The identification and support can be in respect of learners with ADHD or a more pronounced impairment, such as physical impairment. The results obtained in this study indicate that educators have poor knowledge and need to be trained to be able to identify both attention deficit and hyperactivity, and also in respect of how to support learners with these delays in classrooms. If this training can be offered during basic training (pre-service), it will empower first-time educators to be knowledgeable about learners with disabling conditions such as ADHD because statistics indicate that there is a high probability that they will in their classes have learners who have been diagnosed with ADHD (Kokot, 2006:142).

5.7 Attitude

5.7.1 ATTITUDE SCORES: GROSS-MOTOR, FINE-MOTOR AND COGNITIVE DELAYS

Educators play an important role in the process of learning. Local and international research (Avramidis *et al.*, 2000:207; Kubyana, 2005:45) highlights the important role that educators' positive attitudes play in the successful implementation of Inclusive Education. That the educators in this study were positive regarding support of learners is reflected in the mean scores for gross-motor (72,9%), fine-motor (82,7%) and cognitive delays (84,7%). Unfortunately the questionnaire was not designed to indicate whether educators were confronted with such delays and if they were, how extensive these conditions were. The researcher was therefore unable to determine whether these attitudes were intended or whether they were practised. The poor knowledge scores however led the researcher to consider the option that the educators were unable to identify delays and consequently did not realise what taxing demands learners with delays would make on them in their day-to-day teaching, nor how much supplementary preparation would have to be done and additional support given.

Gross-motor skills had a significantly lower attitude score than fine-motor and cognitive skills. The knowledge score did not reflect the same difference (median of gross-motor = 25,0%; fine-motor = 25,0%; cognitive = 28,6%). The researcher then argues that educators are less positive regarding the support of learners with gross-motor delays because they fail to see the support of gross-motor delays as part of educating a learner, whereas fine-motor and cognitive delays are, to a greater extent, part of their day-to-day work and their frame of reference.

5.7.2 ATTITUDE TOWARDS CONTEXTUAL FACTORS

"I try hard in my humble way to teach my children something, Doctor.
But it is hard. You find them all miserable and underfed. They are

unable to concentrate; always listless and tired. It is heartbreaking work to teach them, and some of them are so eager.”

These were the words of an educator to Dr C Louis Leipoldt, the first medical inspector in South Africa between 1914 and 1924. The educator was most probably responding to the effects of malaria and bilharzia on the learners. This quote comes from Leipoldt’s book *Bushveld Doctor* published in 1937, as quoted in Fleisch (2008:31). Now, nearly 100 years later, these words could just as well be uttered by educators teaching specially in rural areas because of the high number of learners who are either infected or affected by HIV/AIDS, or by learners who are experiencing financial or family problems. Contextual factors can impact directly – such as demonstrated by the quote – or indirectly on school performance, such as when a family experiences financial problems and the child does not attend school because parents cannot afford a school uniform, school fees or stationery.

It was therefore disconcerting that educators’ attitude towards contextual factors was less positive than was their attitude towards other concepts. It is believed that their ignorance regarding the impact of contextual factors on the learner’s scholastic and behavioural problems will render them unable to identify possible contextual/socio-economic problems and that they will thus also not support learners appropriately when they experience such problems.

5.7.3 TOTAL ATTITUDE SCORES

An attitude represents a predisposition towards aspects; it is often enduring and has a directional quality. The educators in this study presented with an overall positive attitude towards the support of learners with delays in gross-motor, fine-motor and cognitive skills (mean 80,0%). When exploring how the results were obtained it was observed that in this study the typical responses were positive with only three of the 42 answers being more negative than positive. These results differ from those obtained by Jobe (1996) whose results revealed that the educators’ typical responses fell between the extremes of *strong agreement* and *strong disagreement*. The researcher finds it difficult to explain

the excessively positive (almost euphoric) attitudes of the participants in the present study. The researcher argues that educators were positive because their perception of a learner with a barrier/delay was skewed because of their poor knowledge. They were probably confronted with learners with delays but could not identify the learners as having a delay and thus in need of support. Consequently, educators were positive because they were unaware of the impact that identified delays would have on them. The results obtained in this study thus reflect the attitude of educators towards what they *perceive* as delays. It is expected that once educators realise how giving support will impact on their lives – extra input in the form of preparation, the making of aids, and the extra time involved in supporting learners with delays – their attitudes may be quite different.

5.7.4 DIFFERENCE BETWEEN AFFECTIVE, BEHAVIOURAL AND COGNITIVE RESULTS

Attitude is inferred from three components: cognitive responses (believing it is important or unimportant to support learners with barriers), affective responses (anger or sympathy experienced as a result of supporting learners with barriers) or behavioural responses (exhibiting positive or negative behaviour, such as spending extra time with a learner who is experiencing barriers to learning). Research has established inter-relatedness between these aspects (Avramidis *et al.*, 2000:196; Mahat, 2008:90). This three-tiered model admits that attitudes are complex and it has guided psychologists to develop several theories to understand and explain human behaviour. For this study, the researcher only wanted to determine whether the responses towards the three aspects would be the same. The results obtained indicated that behavioural responses were most prominent. This could indicate that educators who demonstrate positive affective **and** positive cognitive attitude will engage in positive behaviours (Mahat, 2008:90). It was only between behavioural and cognitive questions that the differences were significant ($p=0.0157$).

What could have influenced the results in this part of the study was that all the responses were highly positive, and that there were very few questions and

these were not balanced in terms of the number of questions in each category (*behaviour* – ten questions, *cognition* – six questions and *affect* – five questions). It is also argued that since they cannot identify learners with possible delays educators do not appreciate the demands (physical and emotional) of supporting learners with barriers. The researcher must thus conclude to say that no significant deductions could be made from these results.

5.7.5 FINAL NOTES ON ATTITUDE

When two grown-up brothers were asked why the one was a successful businessman and the other an alcoholic streetbum, they both answered, “because my father was an alcoholic streetbum”. It would thus seem that attitude is the single most powerful tool that can influence our thoughts or behaviour. This tool can however be used on both ends of the stick: if there are two educators who have each had experience with a hyperactive learner and they are again confronted with a hyperactive learner, one could be glad to have the opportunity to utilise her experience and the other educator could feel discouraged by being once again confronted with a learner with so many problems and she could give up on him/her before even trying. What then are the factors that influence attitude? A quote from Victor Frankl’s (1946:75) *Man’s search of meaning* has been pivotal towards understanding attitude:

“We who lived in concentration camps can remember the men who walked through the huts comforting others, giving away their last piece of bread. They may have been few in number, but they offer sufficient proof that everything can be taken from a man but one thing: the last of the human freedoms to choose one’s attitude in any given set of circumstances, to choose one’s own way.”

Although this fails to explain why people behave differently in identical circumstances, it does guide the researcher to consider that compassion in such circumstances is not a cognitive response; it is more automated behaviour: doing something, the ‘right thing’, because you have done it often. The researcher

believes that there are many causative/contributory reasons why the 'right thing' is being done. Some of the reasons can be religious beliefs, upbringing, cultural influences or maturity. Whatever the reason may be, the researcher deduces then that when a positive attitude is practised frequently, it would eventually lead to doing 'the right thing', often. Literature supports the notion that those educators who have experience of supporting learners in class, have a more positive attitude (Avramidis *et al.*, 2000:201; Kuester, 2000). It is thus the researcher's conclusion that educators should be exposed to learners with barriers, and empowered to identify and support them. By doing the 'right thing' often and with support, attitudes may (continue to) be positive.

5.8 Relationship between attitude, training and experience

5.8.1 RELATIONSHIP BETWEEN TRAINING AND KNOWLEDGE AND ATTITUDE

In this study there was a correlation between more years of training and improved attitude ($p=0,0321$). Avramidis *et al.* (2000:201) also found that educators with substantial training in Special Education had significantly higher positive attitudes than those with little or no training in Inclusive Education. This information is in line with and builds on the White Paper 6 premise of "providing effective development programmes for educators" (2001:6). One of the core functions of the DBST is to support the learning needs of educators (SA, 2005(a):21-22). The occupational therapist (and other officials of the DBST) can present training secure in the knowledge that increased training **will** contribute to the positive attitude of educators.

Educators' knowledge did however not correlate with increased years of study ($p=0,7075$). A contributing factor could be that for many years prior to 2004 there was no controlling body to manage the content of the training to educators. Thus, although the research considered the years of training of educators, it did not consider the content of the curriculum presented to them. The researcher

opines that not only the *duration* of training but also the *quality* of training have an impact on educators' knowledge.

5.8.2 Relationship between experience and knowledge and attitude

In this study there was also a poor correlation between *teaching experience* and *knowledge* ($r=0,04$) and between *teaching experience* and *attitude* ($r=0,14$). Avramidis *et al.* (2000:201) also found that ordinary teaching experience (and gender, size of school or class) did not correlate with educators' attitude regarding the inclusion of learners with delays in ordinary schooling. However, both Avramidis *et al.* (2000:201) and Kuester (2000) reported that educators with **active** experience of learners with barriers held more positive attitudes than did those educators with little experience on the support of learners with barriers. This confirms the notion that educators must start to do the 'right thing' and have active experiences with learners with barriers so as to develop (maintain) positive attitudes. It is therefore suggested that the DBST members should facilitate the placement of learners with moderate educational needs in ordinary schools, but simultaneously to support the educators, to monitor the progress of the learners and thereby to provide opportunities to do 'the right thing'.

5.8.3 Relationship between when training was received and knowledge and attitude

Although literature refers to the disparity in training facilities prior to 1994, it is noteworthy to observe that the group who obtained the highest mean knowledge score and also obtained the highest overall attitude score, completed their training before or up to 1980, which was in the apartheid era (Table 4.25). The researcher thus considers not all training facilities in the apartheid era to have been 'dysfunctional' as has been mentioned by SACMEQ (2005:65) and Monyooe (2005:11), to name but two. The researcher further considers educational experience (these educators trained some time ago and many now have quite a number of years' teaching experience), life experience (these educators might well have had children or grandchildren of their own and thus experienced child development at first hand through their own children) and also the informal

training (maybe by the DBST) that these educators could have been exposed to through the years to have had an effect on this group's knowledge and attitude. It is thus clear that many factors could have contributed to the fact that educators who qualified long ago have higher knowledge and attitude scores.

5.9 Suggestions for further research

The White Paper 6 (2001) suggests that learners with barriers be supported in ordinary schools. The occupational therapist with knowledge regarding development and the different occupational roles of the learner should play an indispensable role in the implementation of Inclusive Education. There is unfortunately no research regarding the role of occupational therapy in the South African education system. Such research will promote evidence-based intervention and be a bargaining tool for more occupational therapy posts within Education.

The lack of recent research, both national and internationally, regarding the role of the occupational therapist in supporting visual-perceptual delays forced the researcher to base intervention on potentially outdated information. Research regarding this aspect could also support the need for occupational therapy interventions in schools (and other settings).

It is further suggested that a study population of educators who are currently supporting learners with barriers be used to determine attitude. It is believed that these results will then give a clearer snapshot of educators' attitudes towards managing learners with barriers in the classroom since they will then have first-hand experience in this regard.

5.10 Recommendations

5.10.1 KNOWLEDGE ENHANCEMENT

The simplistic assumption that *“what is on offer in the mainstream school is, with minor modification and a little redistribution of resources, a means to ensuring*

educational excellence and equity" (Lloyd, 2002:141), is unfortunately not true. The information obtained in this study was a modest effort to expose or lay bare some of the needs to attain *excellence in education*. The researcher believes that these facts are but a tiny peak of a, still hidden, iceberg that constitutes the real lack of knowledge. The researcher will conclude her study with a few recommendations. Since the ultimate aim of this research was to empower the occupational therapist to run a practice that is evidence based, most of the recommendations pertain to occupational therapy interventions and occupational therapy student training, while some recommendations to the DoE are also suggested.

5.10.1.1 Designing a support package for learners by the occupational therapist

The researcher wants to agree with the educator who said: "Sometimes I shout, yell, which I know deep in my heart is wrong but due to frustrations I often do that particularly if I have many children in class." For the researcher it is in "particular the many schools (314) and great need for support that is evident from this research" that cause the frustrations. Judging by poor knowledge scores obtained in this research, the researcher realises that training will be a crucial part of the district occupational therapist's job. The role of the occupational therapist at the district level as described in White Paper 6 (2001:41) and the job description (DoE, 2010(a)) suggest the development of a support package for learners, by doing one or more of the following: consultation, providing and monitoring of programmes and training of educators. This is supported by the Occupational Therapy Practice Framework (OTPF) used in America (AOTA, 2008:654) and research conducted by the CanChild Centre in Canada (Whalen, 2003). The OTPF describes training as "an intervention process that involves the imparting of knowledge and information about occupation and activity and that does not result in the actual performance of the occupation/activity" (AOTA, 2008:654). Training might take place in either a one-on-one setting or in small groups.

The results of this research empowered the researcher to be able to compile the following guidelines for training educators within the South African education system:

- Use concrete measures to explain the separate concepts underlying the development of higher skills, such as writing (well-developed motor control) or reading (well-developed cognitive skills) so as to enhance understanding of the interrelatedness between skills.
- Information should be presented in simple language since the information session will most probably not be in trainees'/educators' home language.
- Through information sessions, educators must be enabled to link the problem observed in the child to a delay in development. For example, the learner's inability to form letters properly is due to the learner's immature and poorly developed pencil grip.
- Because of the spread/standard deviation of the knowledge results it is important that the occupational therapist should determine the baseline knowledge of educators before planning training.
- Poor knowledge scores obtained should alert the occupational therapist to the need to be creative in the presentation of training, by using methods/techniques, such as interactive presentations, small-group discussions and application of information through case studies.
- To determine whether training is meeting the specific needs reflected in this study, pre- and post-tests are suggested to determine whether educators have gained knowledge through training.
- Application by means of case studies will demonstrate educators' ability/inability to convert the knowledge gained into practice.

When designing a support package for a learner, the occupational therapist should always remember to have reasonable expectations of the educator's abilities. This support package should also be developed in collaboration with the support team, since research has demonstrated that if training needs are developed from a collaborative needs-analysis by the educator, the occupational

therapist and school working together, educators' attitudes towards the training are more favourable (Avramidis *et al.*, 2000:207).

In most work settings occupational therapists are expected to work in multi-, interdisciplinary and transdisciplinary team settings (Case-Smith, 2005:44). The limited experience the researcher has had with students would lead her to recommend the enhancement of students' knowledge and skills through collaborative consultation.

Collaboration can be considered conducive to learning if the team have:

- Mutual goals.
- Parity among themselves, and if all input is equally valued.
- A shared responsibility for learners' progress.
- Members who are voluntarily participating (DoE Conn, 1999:15).

Collaborative consultation in this setting is practised by means of interdisciplinary team (DBST) meetings in which the needs, strengths and interventions or suggestions to the learner/s are discussed. The occupational therapist will then collaborate further with the educator/s to discuss and monitor the intervention strategies. Students, once they have been trained and have had clinical experience of collaborative consultation, will be empowered to work in teams in which collaborative consultation is used.

If the occupational therapist wishes to make a meaningful contribution during team meetings she will be expected to be knowledgeable about the NCS, the different learning areas, the expected outcomes, assessment standards and how these aspects link with the occupational performance of the learner. The researcher envisages that, with the more rigorous implementation of Inclusive Education, more occupational therapists will be appointed at the district level and at schools, as is the case in other countries (Punwar, 1994:151). This then implies that for occupational therapists to be able to be part of the collaborative consultation process, they need to be knowledgeable about the process itself (DoE Con, 1999:15; Engelbrecht, Forlin, Eloff & Swart, n.d.) and they need moreover to be knowledgeable about the school-related aspects, such as NCS, in

order to be able to assist educators effectively with appropriate strategies. The need for special training to occupational therapists working in school settings was described by Niehues, Bundy, Mattingly and Lawlor (1991:209) in their qualitative study on the occupational therapist in public schools. The researcher would recommend that all therapists working in schools should at least have training regarding curriculum expectations. This will help therapists to have reasonable expectations of educators and learners, and will assist them to link therapy input with school tasks.

The literature-review phase of this study revealed a further problem. In a chapter entitled *Visual Perception* written by Schneck (2005), 183 references were listed; only 13 of these references were from books written since 2000. The researcher also experienced difficulty in obtaining recent literature when doing literature research on neurology and the evidence-based practices of treating visual perception. Since many occupational therapists are involved in visual-perceptual training, we should ask ourselves: “Are we working in an evidenced-based manner?” or “Is there recent research to back the efficacy of our input?”. It is suggested that well-developed research be conducted to determine the efficacy of training in respect of visual perception in various circumstances and contexts.

5.10.1.2 Knowledge in respect of writing as a skill: recommendations to the DoE

The poor knowledge score obtained for fine-motor skills is alarming since, according to McHale and Cermak (1992:901), 85% of 2nd – 6th Graders’ time is spent on fine-motor tasks (pencil-and-paper activities) and because 10% of all elementary school children experience handwriting difficulties. Poor knowledge regarding fine-motor skills may either cause educators not to be able to identify delays and/or to implement ineffective intervention strategies. The non-recognition of writing as a motor skill in the curriculum (NCS) is also evident because the only reference to writing is in the Grade R Home Language curriculum, which states that the child should be able to “manipulate[s] writing tools like crayons and pencils” (SA, 2002(d):18). A further disparagement of motor skills is noted in Gauteng’s application form for admission to special

schools: the only mention of motor skills is under the category *Academic Competencies*, where difficulties with pencil grip, word formation and writing speed can be ticked off in a tick box. This research has demonstrated that educators have poor knowledge regarding motor skills in general; yet the denigration of the role of motor skills in scholastic tasks cuts much deeper and originates with the National Department of Education in compiling the NCS. It is believed that this should be addressed by people involved in curriculum development and that writing as skill should be re-instated as a separate learning outcome (subject) in the NCS for the Foundation Phase so as to provide learners with opportunities to develop and practise this important skill.

5.10.1.3 Knowledge in student-teacher training

From the literature review (Tennyson, 2006:22) and the researcher's own experience gained through lecturing to Honours students at UFS, it was evident that educators are neither informed about the role of the occupational therapist in education, about the development of foundational skills (such as fine-motor skills), nor about form-and-space perception. It is therefore suggested that in the training of student teachers an occupational therapist should explain the role of occupational therapy in supporting learners with developmental delays. The presentation of the rationale behind well-developed gross-motor, fine-motor and cognitive skills for a school-going child should also be considered.

5.10.2 ATTITUDE EXPERIENCES

Because it is difficult for the researcher to make suggestions regarding attitude in that the attitude scores obtained were high, she will therefore conclude with one suggestion: attitudes should be measured again when educators have had first-hand experience in respect of supporting learners with delays. The suggestions made in Section 5.4.5 regarding attitude measurement should however be taken into consideration.

5.11 CONCLUSION

The results obtained in this study indicated that educators have poor knowledge regarding the gross-motor, fine-motor and cognitive skills of a Grade 1 learner. The

educators' attitudes regarding the support of learners with barriers were significantly positive.

The need for this research emanated from concern over South African children's poor reading and writing abilities. Although occupational therapists are not involved in the teaching of reading and writing skills, the role of the occupational therapist is to support the skills development of areas underlying and supporting scholastic performance. Delays in these areas often result in barriers to learning basic scholastic tasks.

According to the White Paper 6, establishing an inclusive system "will require changes to ordinary education so that learners experiencing barriers to learning can be identified early and appropriate support provided"(SA, 2001:24). Although the Inclusive Education System was announced and rolled out in 2001, its implementation is well behind schedule (SA, 2001:42-43). The researcher expects that with more rigorous implementation of the Inclusive Policy, more learners with mild to moderate barriers will/should be identified and will need support in ordinary classes. District-level occupational therapy posts in the Free State Department of Education have only been established since 2007. Currently there is only one occupational therapist in the Free State Province, namely in the Motheo District, who has to service 314 schools. An important task of the occupational therapists at the district level is that of supporting educators who are managing learners with barriers in their classes. The results obtained in this study indicated that educators are not knowledgeable about the performance skills of Grade 1 learners regarding gross-motor, fine-motor and cognitive skills. It is therefore not expected that educators will be able to identify learners who are experiencing barriers to learning within these areas. It is the researcher's considered opinion that this is one of the reasons why South Africa's reading and writing abilities are well under par. Once barriers can be identified, intervention strategies can be developed to intercept delays.

America, Canada and Australia have ample research that supports the evidence-based practices of occupational therapy in education/schools (CAOT, 2002; DoE Conn, 1999; Whalen 2003). It is believed that this modest research will be a first step towards unpacking the role of the occupational therapist within the Inclusive Education Policy in South Africa and that it confirms the need for more occupational therapists at the

district level within the education system. One occupational therapist cannot deliver effective service to 314 schools.

The overly positive attitude of educators is difficult to explain. The researcher deduces that it is because the educators do not realise what the full implications of emotional and physical strain on educators will be if they support learners with barriers to learning. The researcher is thus concerned that when once educators actually experience the full impact of supporting learners with barriers in their classes, their attitude may change. It is therefore evident that, as educators are being confronted with more and more learners with barriers to learning in their classes as the Inclusive Education Policy is being implemented, they will have to be guided through the process of change. An important tool in this regard will be one of building on their knowledge and skills. In the DBST this will mean that each professional group (occupational therapists, speech therapists, social workers and psychologists) will have to empower educators to be knowledgeable about their specific area of expertise. The results obtained in this research will provide a solid baseline from which the occupational therapist will be able to develop knowledge and skills to assist educators in identifying barriers in learners. The next step will be the development of appropriate intervention strategies for the identified barriers.

In concluding this chapter and study the researcher reflects on the great need for support to educators to assist them to identify and support learners who experience barriers to performing age-appropriate skills. These delays often hamper the learners' scholastic abilities and often result in poor reading and writing. It is the researcher's belief that the results obtained in this study will accentuate the important role that the occupational therapist can/should play in supporting educators and learners to embrace the inclusive practices described by the Department of Education, but which have up to now been implemented with trepidation.

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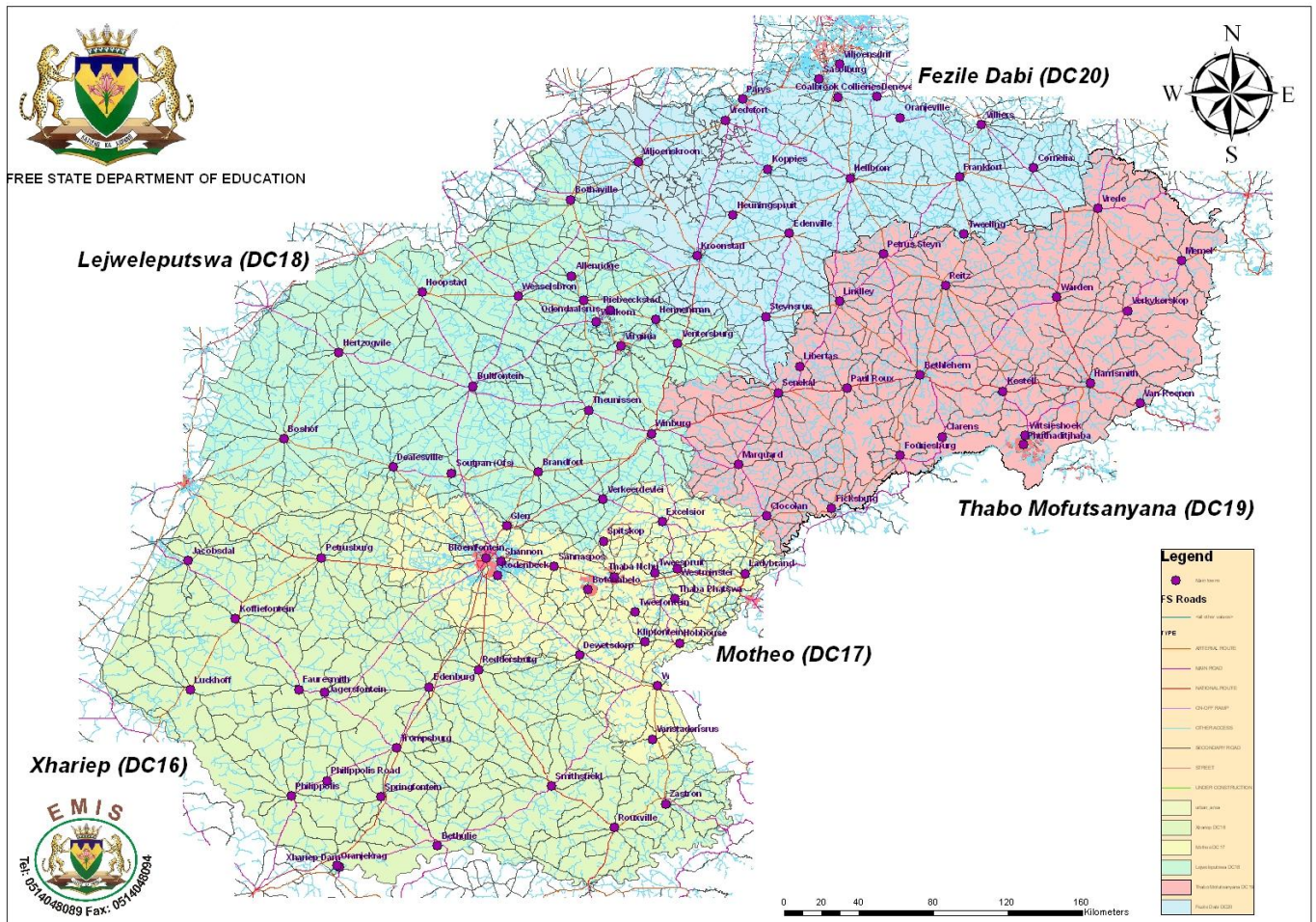
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ADDENDUM 1: MAP OF MOTHEO DISTRICT



ADDENDUM 2: REQUEST TO DEPARTMENT OF QUALITY ASSURANCE TO CONDUCT ACADEMIC RESEARCH

P.O Box 31356
Fichardt Park
9317

DATE

The Head Educational Specialist IRRISS
Syfrets Building
Free State Department of Education
Private Bag X 20565
Bloemfontein
9300

Dear Ms Gaborone

PERMISSION TO CONDUCT ACADEMIC RESEARCH

I am a Masters student in Occupational Therapy at the University of the Free State. I am also an occupational therapist working in the Department of Education in Inclusive Education Sub Directorate, Motheo District. I am undertaking research which is titled: **Performance skills of grade one learners: educators' knowledge and attitude**. My study leader is Me Danette de Villiers, a lecturer at the University of the Free State (contact number 051 – 401 2829).

The aim of this study is to determine the knowledge and attitude of Grade 1 Educators regarding developmental delays of learners. This information will assist the occupational therapist to determine the focus areas in which the therapist can empower educators to address learning and developmental barriers and to support the learners in the class.

This research was inspired by the launching of the Foundation for Learning Campaign by the Minister of Education on 14 March 2008. The aim of this campaign is to improve the learners' performance in reading, writing and numeracy. This comes as a response to national and international studies that have shown that the South African children's reading, numeracy and writing performance is well below expected levels. The occupational therapist can play a valuable role in the identification and the management of developmental delays, which may result in reading, writing and numeracy problems. Unfortunately there are only two occupational therapists employed in the Free State Department of Education. Since it is impossible to assess and treat the learners in need, the solution is to empower the educators to know how 1) to identify developmental delays and 2) to support these learners in the class environment. This survey is a starting point to determine the baseline of the educator's knowledge and their attitudes towards developmental delays. As a result the occupational therapist will be able to develop intervention strategies in order to address the specific needs, which will become apparent in the questionnaire.

The study will be done in 50 schools which have been chosen randomly and 108 educators will take part in the survey.

The survey will consist of a questionnaire which the educators will have to complete, and it will take them approximately 20 minutes to complete. I will try to arrange all contact sessions in such a way that it will not interfere with the normal school programme.

The results will be made available and can be presented to your department.

A written response will be greatly appreciated.

I trust that this application will be given your kind consideration and time.

Kind regards.

S Vermaas
Occupational Therapist at Inclusive Education
Tel: 082 571 6885

Supervisor: Ms D De Villiers

ADDENDUM 3: PERMISSION FROM DEPARTMENT OF QUALITY ASSURANCE TO CONDUCT RESEARCH

6. Mar. 2009 11:10



Enquiries: Malmame IM
Reference: 16/4/1/06-2009

Tel: 051 404 8662
Fax: 051 447 7318
E-mail: malmame@edu.fs.gov.za

2009 – 03 – 02

Mrs. SH VERMAAS
DEPARTMENT OF EDUCATION
BLOEMFONTEIN

Dear Mrs. Vermaas

REGISTRATION OF RESEARCH PROJECT

1. This letter is in reply to your application for the registration of your research project.
2. Research topic: **Performance skills of Grade 1 Learners: Educators' knowledge and Attitude.**
3. Your research project has been registered with the Free State Education Department.
4. Approval is granted under the following conditions:-
 - 4.1 Educators participate voluntarily in the project.
 - 4.2 The names of all schools and participants involved remain confidential.
 - 4.3 The questionnaires are completed and the interviews are conducted outside normal tuition time.
 - 4.4 This letter is shown to all participating persons.
 - 4.5 A bound copy of the report and a summary on a computer disc on this study is donated to the Free State Department of Education.
 - 4.6 Findings and recommendations are presented to relevant officials in the Department.
5. The costs relating to all the conditions mentioned above are your own responsibility.
6. **You are requested to confirm acceptance of the above conditions in writing to:**

The Head: Education, for attention: DIRECTOR : QUALITY ASSURANCE
Room 401, Syfrets Building, Private Bag X20565, BLOEMFONTEIN, 9301

We wish you every success with your research.

Yours sincerely


FR BELLO
DIRECTOR, QUALITY ASSURANCE

Directorate: Quality Assurance, Private Bag X20565, Bloemfontein. 9300
Syfrets Center, 65 Maitland Street, Bloemfontein
Tel: 051 404 8750 / Fax: 051 447 7318 E-mail: quality@edu.fs.gov.za

ADDENDUM 4: LETTER TO PRINCIPALS: PERMISSION TO CONDUCT ACADEMIC RESEARCH

P.O. Box 31356
Fichardt Park, 9317
DATE

The Headmaster
¹ School

Re: PERMISSION TO CONDUCT ACADEMIC RESEARCH

I am a Master's student in Occupational Therapy at the University of the Free State. I am also an occupational therapist working in Department of Education in Inclusive Education Sub Directorate, Motheo District. I am undertaking research which is titled: **Performance skills of grade one learners: educators' knowledge and attitude.**

The study will determine the knowledge and attitude of Grade 1 educators regarding developmental delays. This information will assist the occupational therapist to determine focus areas in which the therapist can empower educators to address the learning barriers and to support the learners in the class environment. Both the growing number of learners with learning barriers and the shortage of occupational therapy services in the Department of Education prompted this survey.

Your participation in this study will empower the occupational therapist to render an effective service to your school and other schools, since the therapist will be able to address the specific needs which will come forth from this questionnaire.

Your school has been randomly selected as part of the sample schools. It would be greatly appreciated if the Grade 1 educators could participate in this research. The procedure involves the completion of a questionnaire. It will take approximately 20 minutes to complete the questionnaire and I will try to arrange all contacts sessions in such a way that it will not interfere with the normal school programme. I undertake to ensure strict confidentiality regarding the information collected, and all participants will remain anonymous. A copy of the report will be made available to schools that are interested and will be available at the library of the Department of Education.

The Free State Department of Education has granted permission for the research to be done and the letter to this effect is attached.

I trust that this appeal will be given your consideration and time and I express my gratitude in anticipation of your kind co-operation.

Kind regards

S Vermaas
Occupational Therapist, Inclusive Education
Tel: 082 571 6885
Supervisor: Ms Danette de Villiers
¹- *The names of the school was inserted here*

Please be so kind as to complete the following slip.

Herewith I, (full name)_____ of_____ School give permission for the research project to be performed at this school. I realize that participants must still give informed consent and that the school and participant may at any time discontinue their participation to no detrimental effects.

Signed:_____ Date:_____

Place:_____

ADDENDUM 5: LETTER TO EDUCATORS: CONSENT TO PARTICIPATE IN RESEARCH

Dear Educator

Re PERMISSION TO CONDUCT ACADEMIC RESEARCH

I am a Master's Degree student in Occupational Therapy at the University of the Free State. I am also an Occupational Therapist working in Department of Education in Inclusive Education Sub Directorate, Motheo District. I am undertaking research titled: **Performance skills of grade one learners: educators' knowledge and attitude**. My study leader is Me Danette de Villiers, a lecturer at the University of the Free State (contact number 051 – 401 2829).

The study will determine the knowledge and attitude of grade 1 educators regarding developmental delays. These will pin-point the focus areas where the occupational therapist can empower the educators to address barriers to learning and support the learners in class situations. The growing number of learners with barriers to learning, and the shortage of occupational therapy services in the Department of Education, prompted this survey.

Your school has been randomly selected to be part of this study. 50 schools are taking part in this survey. Your participation will remain confidential, and research will be treated with strict confidentiality. By taking part in this study, you will empower the occupational therapist to render an effective service to your and other schools, since the therapist will be able to address the specific needs which will come forth from the research. Your participation in research is voluntary and you may discontinue at any time with no detrimental/unfavourable effect.

If you are to take part, you will complete one questionnaire. Your name will not be on the questionnaire, and the questions will be mostly questions where you only have to tick a correct answer with a few questions, where you have to write in your opinion. It is foreseen that this questionnaire may be repeated in a year or so.

There is no remuneration for the participation of this project, and if you should be interested in the results, the findings can be shared with you.

The Free State Department of Education has granted permission for the research, and the letter to this effect is attached.

I thank you in anticipation of your kind co-operation.

S Vermaas
Occupational Therapist
Inclusive Education

Please be so kind as to complete the following slip

Herewith I, (full name)_____ of_____ school gives permission to take part in the research project. I understand that it is voluntary participation and I may withdraw at any time without any detrimental effect.

Signed: _____ Date: _____

Place: _____

ADDENDUM 6: SCRIPT FOR DISPENSING QUESTIONNAIRES:

Dear educator/s, it is greatly appreciated that you agreed to be part of this research. I know that you are all burdened with a very heavy work-load. Therefore I am even more grateful for your co-operation. As I explained previously this questionnaire will help me, as occupational therapist to focus my support where, and how it is needed. But I do hope that eventually you will also benefit from this research, because your responses will guide me to address training purposefully and appropriately.

I want to emphasize that all data will be treated with confidentiality, therefore I urge you to please be very honest. For example: if I should have asked you (I did not): "Are you punctual, on time, every morning for school?" And you know that sometimes something prevents you from being on time, please be honest and say: "No". Remember this questionnaire is to determine where the DBST can offer support. If we come back to our example of being on time: if you admit that you are sometimes late, then we can explore the matter to see how we can support you. Therefore it is important to be honest at all times and give the correct answer of how YOU feel, not of how you THINK you SHOULD feel! Remember the questionnaire is confidential!

I am very grateful for your voluntary participation and if at any time you wish to withdraw from the research, no action will be taken against you or will be held against you. As I explained previously, there is no remuneration for participating.

If you would agree to participate, you will be expected to fill in a questionnaire that will only take a few minutes. I am going to give you the consent form/s and come to your classes to collect the signed forms.

(If the educator wishes to participate the following would be discussed.)

This is part A of the questionnaire; the last few questions is expecting for you to look at pictures. These are the plates you have to look at. If you reach these questions, please turn the file around to look at the pictures. When you have complete this part, you can post it in the sealed box then I will hand out part B. You can also call me if there is any wording you are unsure of; I can assist you by explaining the word, but I may not be of any further assistance. Please read the instructions carefully. At some questions you will have to tick one appropriate block and sometimes you must choose all the correct options (there are more than one). There are also options where you can write you answer if the correct option is not provided. It is therefore very important for you to read the instructions thoroughly. Please take your time and complete the questionnaire to the best of your ability.

(Part A finished and the researcher brings the sealed box in and control the numbers on questionnaires is the same and the participant post part A)

This is part B, at these questions you will have to choose between 'No, I disagree totally, I disagree somewhat, I agree somewhat or Yes, fully agree'. When you are finished, please deposit the questionnaire in this box. You can look at these plates (Plate A, B and C).

Thank you again.

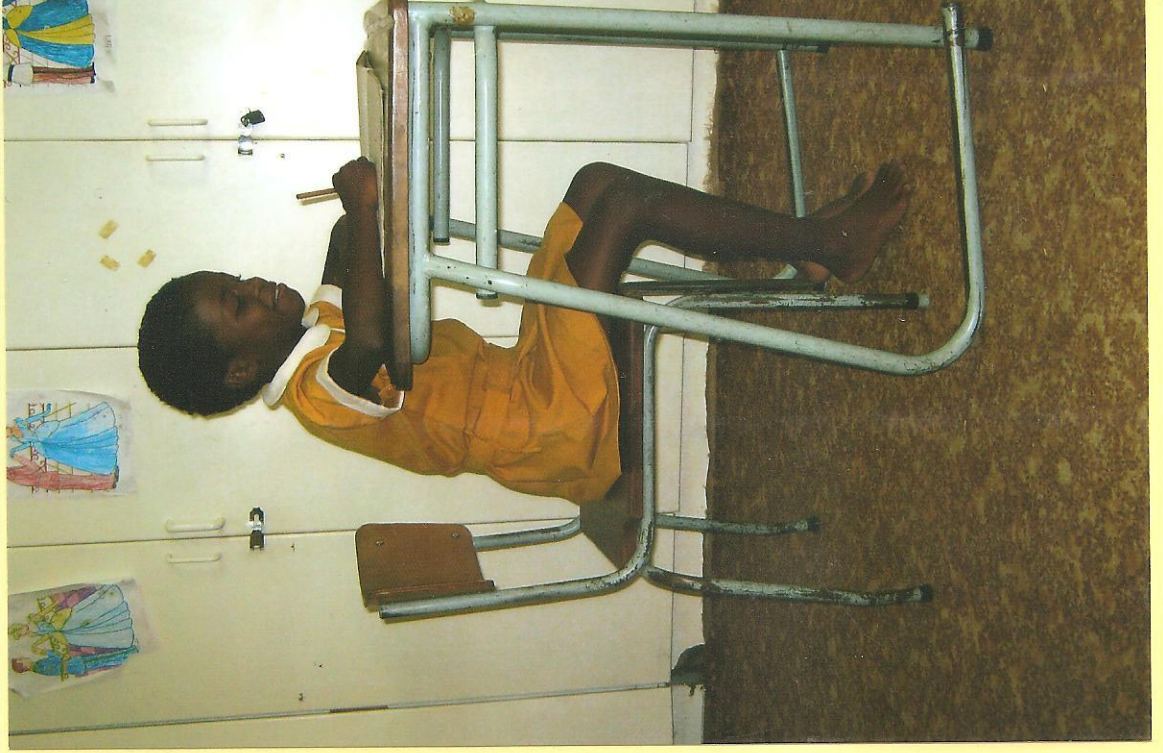
ADDENDUM 7: PLATES 1, 2, 3 AND 4: COPIES OF PICTURES USED IN VISUALLY CUED QUESTIONS



B

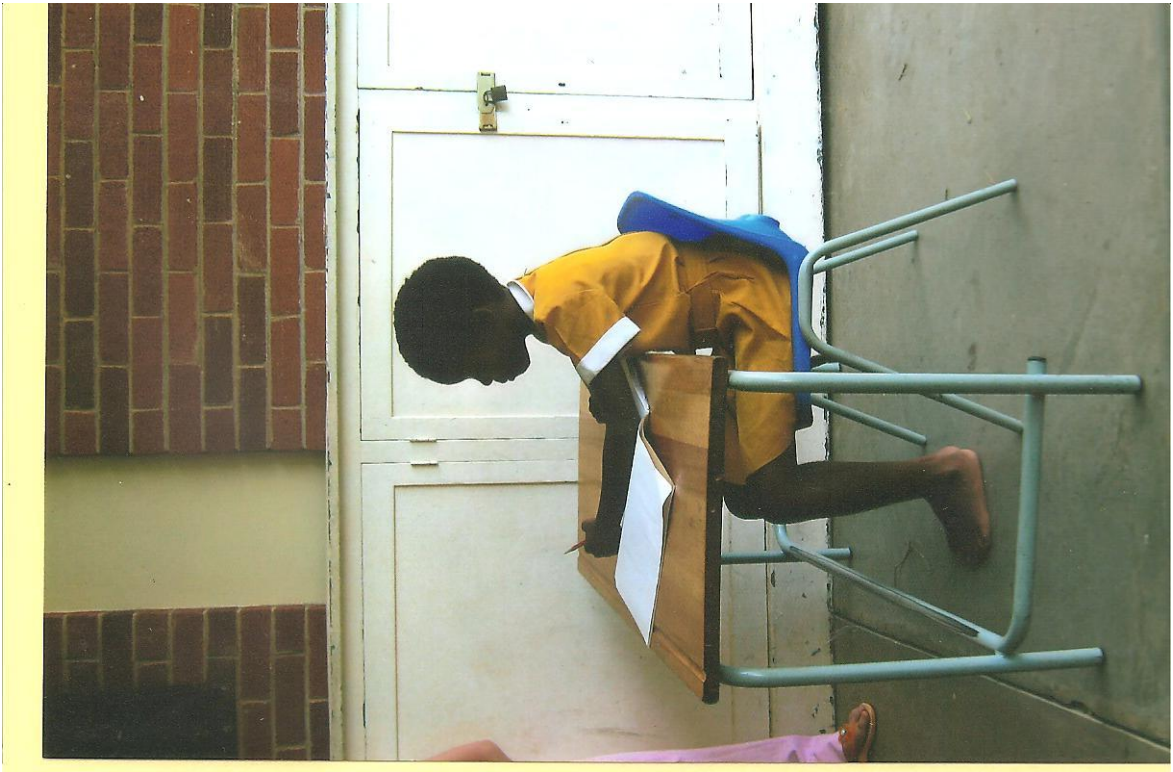


A



C

PLATE 1



B



A



D



C

PLATE 2

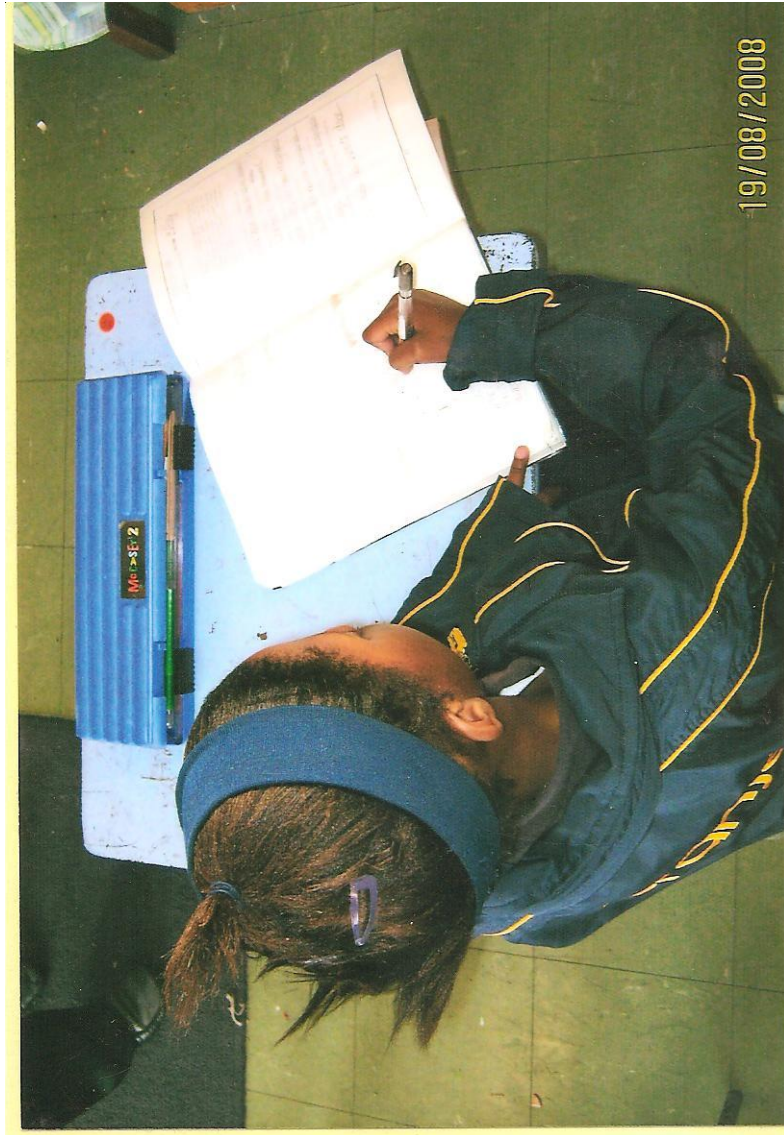
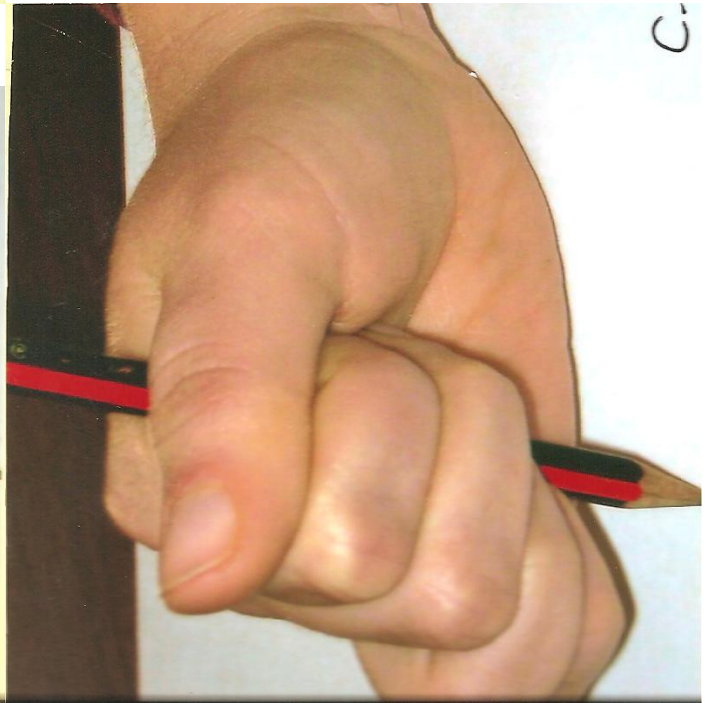
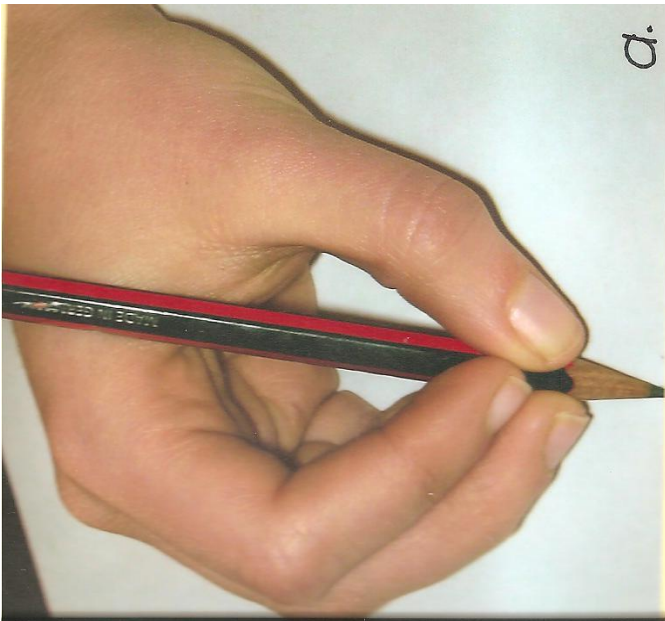
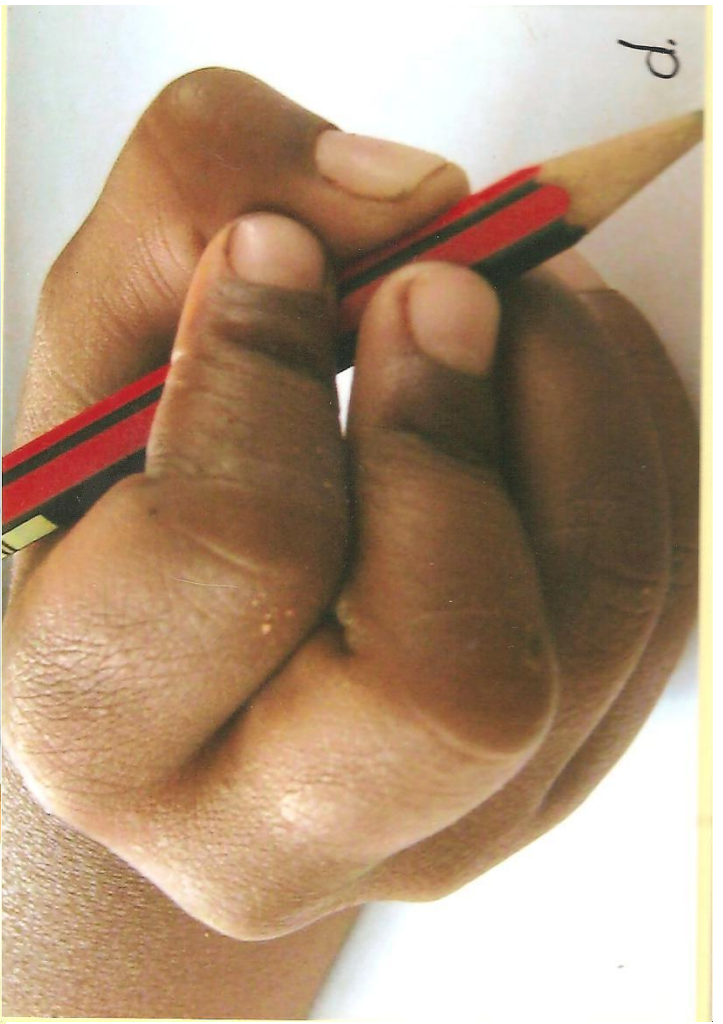


PLATE 3



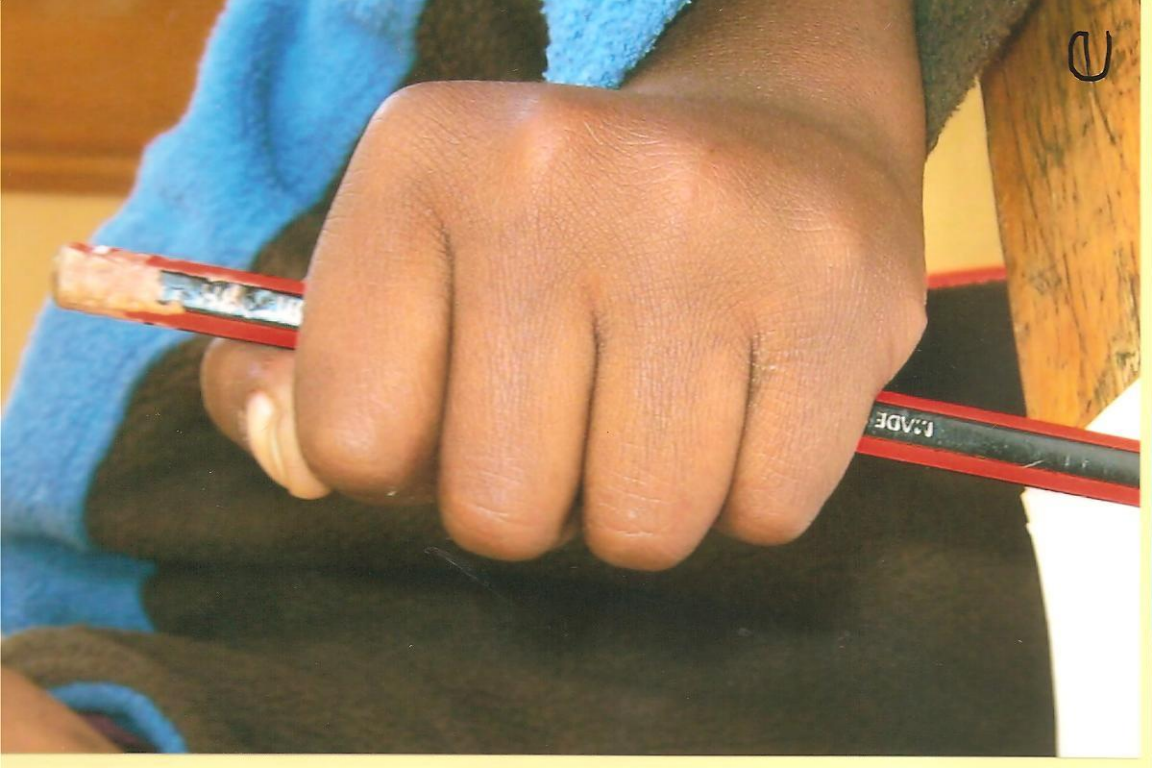


PLATE 4

ADDENDUM 8: PLATES A, B AND C: DEFINITIONS OF COMPONENTS


 GROSS MOTOR	
Big muscle movements to do the following for example:	
Jumping with two legs	Running
Kick a ball	Catch and throw a ball
Hop on one leg	Walking on a brick wall.
Balance on one leg	Rope jumping
Ball games	High jump
Long jump	Jumping jacks

PLATE A



FINE MOTOR

Fine muscle movement is the using of the small muscle in the hand and fingers to do more precision activities such as:

Colouring

Drawing pictures

Cut with scissors

Writing

Painting

Draw between lines

Have a good grip
on pencil

Letter forming

Opening zips and
small buttons

Pick up small
objects like rice or
beads or Smarties

VISUAL PERCEPTION

The ability to give meaning to the things that the learner sees.
It include tasks such as

Know the names of shapes.	Know the names of body parts
Know left and right on them self	Building of puzzles
Know the meaning of: 'on top', 'behind', 'inside', 'next to' or 'close to'	Know where to start if teacher say: start on the left side of the book.
Know the names of colours	Order objects (such as sticks) from short to tall.
Know letter and number names	Know difference between 'b' and 'd'
Don't get confused with letter or number sequence: 63 & 36 or 'on' & 'no'	

ADDENDUM 9: RATIONALE FOR QUESTIONS

GENERAL INFORMATION		QUESTION	TYPE OF QUESTION	RATIONALE FOR QUESTION
	1	Date questionnaire is completed	General information	To date the questionnaire
	2	What is your gender	General information	Discriminate between gender
	3	What is your birth date?	General information	To determine age that will be calculate by computer
	4	How many Grade 1 learners in your class?	General information	Will give information about the amount of learners in class.
	5	How many year of teaching experience do you have in grade 1?	Background information	Will give info about appropriate, Gr 1, teaching experience
	6	How many years of foundation phase teaching experience do you have?	Background information	Will give info about other foundation phase teaching .
	7	When did you complete your basic training?	General information	Before 1994 educators could train as educators with a standard 8 certificate. Not all training colleges were accredited.
	8	What is your home language?	General information	Are educators teaching in their mother tongue?
	9	Are you qualified for: foundation phase, intermediate phase or senior phase?	General information	Are the grade 1 educators qualified/trained to teach grade 1's?
	10	Was your basic qualification a: (Standard 8 + 2, Standard 8 + 3 etc)?	General information	Will give info into the post graduate training of educators.
	11	Do you have any formal post basic training?	General information	Will give info re educators post basic training.
	12	If you answered yes, was it: (Various options offered)	General information	Will give info re the specific post graduate training of the educator.
	13	Are you currently busy with formal studies?	General information	Are educators still busy to further their education?
	14	If you answered yes, please describe:	General information	Give specific information re the studies educators are now busy with
	15	What is the language of instruction in your class?	General information	Are educators teaching in their home language?

	QUESTION	TYPE OF QUESTION AND COMPONENT INVOLVED (IF APPLICABLE)	RATIONALE FOR QUESTION
A1	<p>Typical gross motor skills are: (mark all the correct options)</p> <ul style="list-style-type: none"> a. kicking a ball b. writing between lines c. hitting a ball with a bat d. cutting a circle drawn on a paper with scissors e. jumping with jumping rope f. threading beads 	Knowledge - Physical development: gross motor	<p>Knowledge about the difference between gross and fine motor skills will enable an educator to plan activities for specific deficits. Correlates with A4, exactly the same options to choose from. (Bleck & Nagel, 1982:123 & Beery 2006: 142-152)</p> <p>Correct answers: a, c, e</p>
A2	<p>A learner with good developed motor skills will (mark all the correct options):</p> <ul style="list-style-type: none"> a. have a good posture b. have poor balance c. avoid active games d. have developed a preferred/ dominant hand writing hand e. usually get tired easily f. be unsure about the position of their body in space 	Knowledge - Physical development: gross motor	<p>If educators can differentiate between good and poor motor skills, they will seek help or implement intervention strategies.</p> <p>Correct answers: a, d,</p>
A3	<p>If a learner cannot manage the correct pencil grip, I will usually do the following: (mark all the correct options)</p> <ul style="list-style-type: none"> a. give a lot of colouring tasks b. practice kicking a soccer ball c. try different pencils, such as fatter pencils or pencils with triangular shapes d. give exercises to develop a three point grip e.g. pick up small beads/rice/beads e. None of above f. Other, please specify 	Knowledge - Physical development :fine motor skills	<p>Gives info regarding the knowledge of intervention strategies educators can use.</p> <p>Correct answers: a, c, d, (f)</p>
A4	<p>Typical fine motor skills are: (mark all the correct options)</p> <ul style="list-style-type: none"> a. kicking a ball b. writing between lines c. hitting a ball with a bat d. cutting a circle drawn on a paper with scissors e. jumping with jumping rope f. threading beads 	Knowledge - Physical development: fine motor skills	<p>To determine if educators can differentiate between gross and fine motor skills. Exactly the same activities as in A1 are offered.</p> <p>Correct answers: b. d. f.</p>

A5	<p>A grade 1 learner should be able to perform the following motor tasks: (mark all the correct options)</p> <ul style="list-style-type: none"> a. tie shoe laces b. write their name in cursive c. hold pencil correctly d. throw a netball ball through a standard hoop e. Cutting a circle drawn on paper with scissors f. kick a ball in midair g. hop on one foot 	<p>Knowledge - Physical development - gross motor and fine motor skills</p>	<p>Knowledge of what is expected of a grade 1 learner regarding fine- and gross motor skills, will enable educators to</p> <ul style="list-style-type: none"> * identify deficits in a learner * have reasonable expectations of learners. (Bleck & Nagel 1985:123, and Beery 2006: 142-157) <p>Correct answers: Gross motor: g Fine motor: a, c, e,</p>
A6	<p>At the beginning of grade 1, a learner will be sure which hand to write with and will not change hands but use only the selected hand.</p> <ul style="list-style-type: none"> * Yes * No 	<p>Knowledge - Physical development - fine motor skills</p>	<p>Developed preferred hand for writing is important at school going age. Uncertainties should be addressed quickly to prevent delays/deficits in writing and reading delays (Beery 2006: 148, Pollack 1993:159).</p> <p>Answer: yes</p>
A7	<p>Muscle tone can be described as: (mark only one option)</p> <ul style="list-style-type: none"> a. tension in the muscles b. the ability of muscles to work together c. strength of muscle d. none of above 	<p>Knowledge: Physical development – gross motor skills</p>	<p>If teachers can identify variations in muscle tone they will be able to have insight in the learner's posture: is it tiredness or low muscle tone, and understand why they are 'fidgety' (Shumway-Cook & Woollacott 2001: 171).</p> <p>Correct answer: a</p>
A8	<p>Visual perceptual delays can be seen in the following tasks (mark all the correct options)</p> <ul style="list-style-type: none"> a. unable to cut with scissors b. unable to differentiate between shapes. E.g. Square and rectangle c. unable to tie shoe laces d. unable to identify and name colours e. unable to differentiate between "b" and "d". f. read "was" as "saw" 	<p>Knowledge - Cognitive development: Basic concepts</p>	<p>Basic concepts lay the foundation for the developmental of visual perceptual skills. This question determined if educators can differentiate between perceptual and motor skills. They will then be able to :</p> <ul style="list-style-type: none"> * Identify delays * Seek help * Have insight in learners behaviour * Understand the rationale of intervention strategies (Bukatko & Daehler 2004:204-06) <p>Correct answers: b, d, e, f</p>

A9	<p>When a learner enters grade 1, he/she, should be able to recognize and name the following body part: (mark all the correct options)</p> <ul style="list-style-type: none"> a. head b. ankle c. eye lashes d. finger e. wrist 	<p>Knowledge - Cognitive development: Basic concepts.</p>	<p>Knowledge of body image lays the foundation from where spatial concepts develop. To be able to know what the appropriate knowledge of the learner is, the educator will have reasonable expectations of a learner. (Bleck & Nagel 1985: 123) Correct answers: a, b, d</p>
A10	<p>When a learner enters grade 1, he/she should be able to recognize and name the following 3-dimensional shapes (mark all the correct options)</p> <ul style="list-style-type: none"> a. cylinders b. spheres (balls) c. polygons d. prisms (boxes) e. hexagons 	<p>Knowledge - Cognitive development: basic concepts, 3-D shapes</p>	<p>Well developed form-perception allows a person to discriminate between forms. The ability to differentiate between basic shapes is a predecessor for the discrimination of letters and numbers. If educators have appropriate knowledge of what is expected of Grade 1 learners, they will have apposite expectations. These 2-D and 3-D shapes are indicated in the NCS as outcomes that Gr R learners should achieve (SA 2002(b):26). Correct answers: b, d</p>
A11	<p>A grade 1 learner should be able to concentrate for: (choose only one option)</p> <ul style="list-style-type: none"> a. 1-7 minutes b. 8 – 17 minute c. 18 – 30 minute d. 31 – 45 minute e. none of above 	<p>Knowledge – cognition</p>	<p>Educators should know what is age appropriate concentration ability for learners. An indication given by most articles is 3 to 5 to minutes per year of a child's age, thus 18 to 30 min for a 6 year old. Correct answer: c.</p>
A12	<p>A grade 1 learner, at the end of the year, should be able to recognize and name the following 2-dimensional shapes (mark all the correct options)</p> <ul style="list-style-type: none"> a. circle b. square c. triangle d. rectangle e. oval 	<p>Knowledge - Cognitive development: basic concepts, 2-D shapes</p>	<p>See A10. (SA 2002(b):16 &26) All answer correct</p>

A13	<p>A grade 1 learner, at the end of the year, should be able to recognize and name the following positions: (mark all the correct options)</p> <ol style="list-style-type: none"> in front of next to behind right hand of own body left hand of teacher 	<p>Knowledge - Cognitive development: basic concepts, spatial concepts</p>	<p>Position in space is the ability to orientate oneself in relation to objects. This develops once a child has adequate knowledge about his own body in space. The understanding and application of spatial words correspond with OT developmental tables and the Grade 1's outcomes as described in the NCS (SA 2002(b):16 &26 and Bleck & Nagel 1985: 123). Correct answers: a, b, c, d.</p>
A14	<p>A grade 1 learner, at the end of the year, should be able to copy the following shapes: (mark all the correct options)</p> <ol style="list-style-type: none"> cross circle diamond triangle octagon (eight sided block) square 	<p>Knowledge: Basic concepts - forms Fine motor skills</p>	<p>This pre-writing skill is not only a measure of fine motor control, but also of form and space perception. Uncertainties can be indicative of directional problems. (Beery 2006: 157 and Bleck & Nagel 1985: 123). Correct answers: a, b, d, f</p>
A15	<p>When a grade 1 learner enters school he/she should be able to do the following: (mark all the correct options)</p> <ol style="list-style-type: none"> tie shoe laces ride a 2 wheel bicycle write their name in cursive can indicate the left and right hand of educator know and name 14 different colours dress him/herself builds a 10 to 20 piece puzzle can count 10 objects can jump over a hip height rope 	<p>Knowledge - Cognitive development - Basic concepts: 2-D shapes, colour, space and body awareness Physical development - Gross and fine motor skills</p>	<p>To have the correct knowledge of what is expected of learners according their developmental age and according to the criteria of the NCS, will allow the educator to have appropriate expectations of learners. (Beery 2006:142-157). Bullets a and c correlates with A 5 a & c. Gross motor: e Fine motor: a Cognitive: g</p>
A16	<p>Explain briefly what you understand with each of the mentioned terms:</p> <ul style="list-style-type: none"> delayed/poor gross motor skills delayed/poor fine motor skills delayed/poor visual perceptual skills hyperactivity/restlessness poor concentration/attention deficit 	<p>Knowledge - developmental delays</p>	<p>To obtain information regarding educators' knowledge of these aspects. By getting a baseline knowledge of what educators know, future training can be focused.</p>

A17	<p>I will usually do the following if a child is fidgety/cannot sit still: (choose only one option)</p> <ul style="list-style-type: none"> a. send the child outside for 5 or more minutes b. punish him/her for their behaviour and expect of them to stay behind during break or after school c. allow the learners to move around in the class if it is not disruptive to other learners d. other, specify 	Attitude – behaviour (manage attention deficit in classroom)	<p>The knowledge of how to handle fidgety learners will allow the educators to respond appropriate and handle learner</p> <p>Correct answers: c or d</p>
A18	<p>I will usually do the following if a learner have difficulty in the learning of the names of letters and numbers (choose only one option)</p> <ul style="list-style-type: none"> a. repeat the same instructions until he/she comprehend/understand b. ask the learner to stay after school and repeat instructions in the same way c. try different ways of explaining the same concept d. other specify 	Attitude – behaviour (Cognitive tasks)	<p>Educators with a positive attitude will explore different methods to reach learners efficiently.</p> <p>Correct answers: c or d</p>
A19	<p>I will usually do the following if a learner writes too slow and does not complete tasks/ assignments: (choose one option)</p> <ul style="list-style-type: none"> a. expect of the learner to complete the tasks on their own time after school or during break b. punish him/her for their behaviour by expecting of them to stay behind c. demonstrate again the same instructions until he/she comprehend/understand d. try to determine why the learner cannot write fast enough. e. ignore the fact that the learner never finishes his/her work. f. other, specify 	Attitude – behaviour (Fine motor tasks)	<p>Educators with a positive attitude will explore the reasons why learners cannot cope with tasks.</p> <p>Correct answer: d or f</p>

A20	Look at Plate 1: Which table height is the most appropriate table height for this girl? (Choose one option)	Knowledge - Physical development: posture	Ergonomically appropriate furniture contributes to the maintaining of a good posture. Can educators identify correct desk height? Smith-Zuzovsky and Exner (2004:386), Correct answer: b
A21	Look at plate 2: Indicate the correct sitting posture (choose only one option)	Knowledge - Physical development: posture	To determine if educators can identify good posture. Good posture is the basis from where fine motor skills can be performed. (Bookspan nd, Breithecker nd & Smith-Zuzovsky and Exner (2004: 386)) Correct answer: b
A22	Look at Plate 3: Why does the learner move her book to the side? (choose one option) a. She is tired b. She does not want to cross the midline of her body c. It is good for her posture d. The educator positioned her this way e. I do not know	Knowledge - Physical development: fine motor skills and posture	Bilateral integration was identified as a prominent delay in local population (Van Jaarsveld 1999:63 Normal midline crossing follow after bilateral integration has been established (Van Jaarsveld & Janse van Rensburg 2009). This question is to determine if educators can identify inability to cross the midline Correct answer: b
A23	Look at Plate 4: The correct pencil grip is: (choose only all the correct options)	Knowledge - Physical development: fine motor skills	To determine if educators can identify correct pencil grip. Awkward pencil-grips are strongly correlated to poor penmanship and quicker fatigue. (Tseng 1988: 208, Pollack 1993:154-55)) Correct answer: a, b & d

PART B

Attitude: Open ended questions:			
O1	I believe that learners that experience mild barriers/problems with gross and fine motor skills must be accommodated in mainstream. Yes/no If you replied yes, how will you support these learners?	Attitude – cognitive beliefs	To determine if educators believe that learners with barriers to learning (BTL) should be in mainstream. To get information about the strategies educators would use to support these learners in the class.

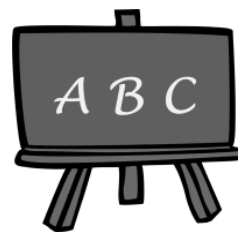
O2	I believe that educators need special training to support learners that have difficulty in the learning of visual perceptual skills. If you replied yes, what kind of training would you like to receive?	Attitude – cognitive beliefs	To determine if educators feel they need extra training to support learners with BTL/ having difficulty in performing appropriate performance skills. Educators to specify training needs.
O3	Do you get irritated if you must repeat instructions to learners that struggle to write properly? Yes/no If you replied Yes, how do you respond? Give some examples of what you do when you get irritated.	Attitude – affect	To get information regarding educators response to handling learners with barriers in their classes.
Attitude: intensity measure			
B1	I believe it is important to make modification/adaptations in activities for learners who need extra help with tasks such as : i. writing between lines(fine motor)*. ii. maintaining a comfortable sitting position when writing (gross motor) iii. learning the names of shapes (cognitive) * (concepts in brackets are not on questionnaire)	Attitude – cognitive beliefs.	Gives information regarding educators' attitude towards learners with difficulty in performing performance skills. Extra support is an indication of positive attitude Positive attitude recognized by: Yes
B2	I am willing to do extra preparation to support learners who need extra help with tasks such as: i. discriminating between colours and naming of colours (cognitive) ii. catching a ball (gross motor) iii. cutting with scissors (fine motor)	Attitude – behaviour	Willingness to do extra preparation is indicative of a positive attitude Positive attitude recognized by, Yes:

B3	<p>I easily get irritated if I must repeat instructions to learners who still do not know, for e.g.:</p> <ul style="list-style-type: none"> i. which hand is their right hand (cognitive) ii. maintain good posture during writing tasks (gross motor) iii. how to hold their pencil (fine motor) 	Attitude – affect	<p>How do educators respond to learners that cannot cope with appropriate performance skills?</p> <p>Positive attitude recognized by, No:</p>
B4	<p>I will often ask my colleagues for advice or assistance to help learners who, for e.g.:</p> <ul style="list-style-type: none"> i. get confused between ‘b’ and ‘d’. (cognitive) ii. cannot jump on one leg (gross motor) iii. cannot colour between the lines (fine motor) 	Attitude – behaviour	<p>Willingness to ask for support is indicative of a positive attitude.</p> <p>Positive attitude recognized by, Yes:</p>
B5	<p>I enjoy teaching learners that need extra help to learn tasks such as:</p> <ul style="list-style-type: none"> i. how to cut with scissors (fine motor) ii. concepts such as on top of, next to, behind (cognitive) iii. how to gallop (gross motor) 	Attitude - affect	<p>Enjoyment is a positive attitude towards learners who experience difficulty in performing age appropriate performance skills</p> <p>Positive attitude recognized by, Yes:</p>
B6	<p>I believe that a learner who behaves badly can probably be a learner with barriers to learning such as:</p> <ul style="list-style-type: none"> i. unable to identifying shapes, numbers and letters (cognitive). ii. unable to write fast enough (fine motor) iii. unable to kick a ball well (gross motor) 	Attitude – cognitive	<p>It is a positive trait to look beyond the behaviour and see the real reason for the learner’s behaviour</p> <p>Positive attitude recognized by, Yes:</p>
B7	<p>I believe I can identify the following learning barriers:</p> <ul style="list-style-type: none"> i. poor gross motor skills ii. poor fine motor skills iii. poor visual perceptual skills 	Attitude - behaviour	<p>Educators who are confident regarding the identification of barriers/delays will act positive and assertive and answer Yes.</p>

B8	<p>I get angry if learners take too long to respond if I assist them in learning, e.g.:</p> <ul style="list-style-type: none"> i. how to throw and catch a ball (gross motor). ii. how to sort things from small to biggest (cognitive) iii. how to cut with scissors on a line (fine motor) 	Attitude – affect	<p>Educators who are supportive towards learners who experience difficulty in performing appropriate tasks will present with a positive attitude.</p> <p>Positive attitude recognized by, No</p>
B9	<p>I will usually do extra reading to educate myself so that I can support learners who, for e.g.:</p> <ul style="list-style-type: none"> i. cannot read well (cognitive) ii. cannot write well (fine motor) iii. are clumsy (gross motor) 	Attitude – cognitive beliefs	<p>Educators with a positive attitude will do extra reading/research to assist learners with BTL</p> <p>Positive attitude recognized by, Yes:</p>
B10	<p>I tend to spend more time with learners who are, for e.g.:</p> <ul style="list-style-type: none"> i. slow to learn colouring and writing (fine motor). ii. slow to learn how to jump with a skipping rope (gross motor) iii. slow to learn left and right on themselves (cognitive) 	Attitude – behaviour	<p>Willingness to spend more time with learners, who have BTL, is a positive trait.</p> <p>Positive attitude recognized by, Yes:</p>
B11	<p>I am tolerant towards learners who are slow to understand, for e.g.:</p> <ul style="list-style-type: none"> i. how to write neatly (fine motor) ii. how to discriminate between a “b” and a “d” (cognitive). iii. how to jump with two legs ‘jumping-jacks’ (gross motor). 	Attitude – affect	<p>Educators who are supportive towards learners with BTL will present with a positive attitude.</p> <p>Positive attitude recognized by, Yes:</p>
B12	<p>I believe that the following can be reasons why learners experience barriers with motor and perceptual tasks:</p> <ul style="list-style-type: none"> • financial problems • poor health • family problems • slow development 	Attitude – cognitive beliefs	<p>To determine if educators consider contextual factors as being contributory to problems learners may experience in school. Insight in will help educators to see the child behind the behaviour.</p>

B13	<p>I will often contact the parents/caregivers of learners who are not progressing with, for e.g.:</p> <ul style="list-style-type: none"> i. writing tasks (fine motor) ii. tasks such as kicking and catching a ball (gross motor) iii. learning the letters and numbers (cognitive). 	Attitude – behaviour	<p>Educators with a positive attitude will involve all possible stakeholders from who’s input learners will benefit</p> <p>Positive attitude recognized by, Yes:</p>
B14	<p>I will often stay after school to support learners who experience difficulty with, for e.g.:</p> <ul style="list-style-type: none"> i. writing letters and numbers (fine motor) ii. understanding spatial concepts such as on top, next to, last, first, underneath (cognitive) iii. balancing and walking on a brick wall (gross motor) 	Attitude – behaviour	<p>Willingness to go beyond normal duties is indicative of a positive attitude.</p> <p>Positive attitude recognized by, Yes:</p>
B15	<p>I will often use extra learning aids to support learners who have difficulty in learning tasks such as :</p> <ul style="list-style-type: none"> i. the names of letters and numbers (cognitive) ii. holding a pencil properly (fine motor) iii. balancing and ball skills (gross motor) 	Attitude – behaviour	<p>Making of extra aids to support learners is indicative of an educator who seeks further for means of support and is a positive attitude.</p> <p>Positive attitude recognized by, Yes:</p>

Questionnaire for Grade 1 Educators



PART A

Instructions:

Mark the appropriate block with a X or write your answer on the space provided.

1 Date questionnaire is completed (dd/mm/yy)/...../.....

2 What is your gender

Male	Female
------	--------

3 What is your birth date?(dd/mm/yy)...../...../.....

4 How many Grade 1 learners in your class?

_____ learners

5 How many year of teaching experience do you have in grade 1?

_____ years _____ months

6 How many years of **foundation phase** teaching experience do you have, including grade 1 teaching? Please write the number of years

_____ year/s

7 When did you complete your training? (year) _____

8 What is your home language?

Afrikaans

☐

English

☐

Sotho

☐

Tswana

☐

Xhosa

☐

Zulu

☐

Other, specify.....

9 Are you qualified for:

foundation phase

☐

intermediate phase

☐

senior phase

☐

For Office Use

		1-2
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			3-5
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						6-11
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	12
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						13-18
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		19-20
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			21-23
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		24-25
--	--	-------

				26-29
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	30
--	----

	31
--	----

	32
--	----

10 Was your basic training/qualification a:

Standard 8 + 2 year training, eg LPOS or PEC

☐

☐ 33

Standard 8 + 3 year training, eg JPOS

☐

Standard 10 + 2 year training e.g. PED

☐

Standard 10 + 3 year training e.g. Diploma in education

☐

Standard 10 + 4 year training e.g. HOD

☐

Standard 10 + B Ed degree

☐

Other:.....

☐

☐ 34

11 Do you have any formal post basic training?

Yes ☐

☐ 35

No ☐

12 If you answered yes, was it:

Diploma in further Education

☐

☐ 36

B Ed Hons in

Support/Remedial

☐

Curriculum Studies

☐

Management

☐

Policy Studies

☐

Other:.....

☐ 37

13 Are you currently busy with formal studies?

Yes ☐

☐ 38

No ☐

14 If you answered yes, please describe (e.g.: B Ed Hons)

☐ 39

15 What is the main language of instruction in your class?

Sotho

☐

☐ 40

Tswana

☐

Xhosa

☐

Zulu

☐

In the following questions choose as indicated:

in some questions mark only one, and in some more than one

For official
use

A1. Typical gross motor skills are: **(mark all the correct options)**

- | | | |
|---|--------------------------|-----------------------------|
| Kicking a ball | <input type="checkbox"/> | <input type="checkbox"/> 41 |
| Writing between lines | <input type="checkbox"/> | <input type="checkbox"/> 42 |
| Hitting a ball with a bat | <input type="checkbox"/> | <input type="checkbox"/> 43 |
| Cutting a circle drawn on paper with scissors | <input type="checkbox"/> | <input type="checkbox"/> 44 |
| Jump with jumping rope | <input type="checkbox"/> | <input type="checkbox"/> 45 |
| Thread beads | <input type="checkbox"/> | <input type="checkbox"/> 46 |

A2. A learner with good developed motor skills will **(mark all the correct options):**

- | | | |
|---|--------------------------|-----------------------------|
| have a good posture | <input type="checkbox"/> | <input type="checkbox"/> 47 |
| have poor balance | <input type="checkbox"/> | <input type="checkbox"/> 48 |
| avoid active games | <input type="checkbox"/> | <input type="checkbox"/> 49 |
| have developed a dominant hand with which to write with | <input type="checkbox"/> | <input type="checkbox"/> 50 |
| usually get tired easily | <input type="checkbox"/> | <input type="checkbox"/> 51 |
| be unsure about the position of their body in space | <input type="checkbox"/> | <input type="checkbox"/> 52 |

A3. If a learner cannot manage the correct pencil grip, I will usually do the following: **(mark all the correct options)**

- | | | |
|---|--------------------------|-----------------------------|
| give a lot of colouring tasks | <input type="checkbox"/> | <input type="checkbox"/> 53 |
| practice kicking a soccer ball | <input type="checkbox"/> | <input type="checkbox"/> 54 |
| try different pencils, such as fatter pencils or pencils with triangular shapes | <input type="checkbox"/> | <input type="checkbox"/> 55 |
| give exercises to develop a three point grip e.g. pick up small beads or rice | <input type="checkbox"/> | <input type="checkbox"/> 56 |
| None of the above | <input type="checkbox"/> | <input type="checkbox"/> 57 |
| Other, specify..... | | <input type="checkbox"/> 58 |

A4. Typical fine motor skills are: **(mark all the correct options)**

- | | | |
|---|--------------------------|-----------------------------|
| Kicking a ball | <input type="checkbox"/> | <input type="checkbox"/> 59 |
| Writing between lines | <input type="checkbox"/> | <input type="checkbox"/> 60 |
| Hitting a ball with a bat | <input type="checkbox"/> | <input type="checkbox"/> 61 |
| Cutting a circle drawn on paper with scissors | <input type="checkbox"/> | <input type="checkbox"/> 62 |
| Jump with jumping rope | <input type="checkbox"/> | <input type="checkbox"/> 63 |
| Thread beads | <input type="checkbox"/> | <input type="checkbox"/> 64 |

A5. A grade 1 learner should be able to perform the following motor tasks: **(mark all the correct options)**

- | | | |
|--|--------------------------|-----------------------------|
| tie shoe laces | <input type="checkbox"/> | <input type="checkbox"/> 65 |
| write their name in cursive | <input type="checkbox"/> | <input type="checkbox"/> 66 |
| hold pencil correctly | <input type="checkbox"/> | <input type="checkbox"/> 67 |
| throw a netball ball through a standard hoop | <input type="checkbox"/> | <input type="checkbox"/> 68 |
| cut with scissors | <input type="checkbox"/> | <input type="checkbox"/> 69 |
| kick a ball in midair | <input type="checkbox"/> | <input type="checkbox"/> 70 |
| hop on one foot | <input type="checkbox"/> | <input type="checkbox"/> 71 |

A6. At the beginning of grade 1, a learner will be sure which hand to write with and will not change hands but uses only one hand to write with.

- | | | |
|-----|--------------------------|-----------------------------|
| Yes | <input type="checkbox"/> | <input type="checkbox"/> 72 |
| No | <input type="checkbox"/> | |

A7. Muscle tone can be described as: **(mark only one option)**

- | | | |
|---|--------------------------|-----------------------------|
| tension in muscles | <input type="checkbox"/> | <input type="checkbox"/> 73 |
| strength of muscles | <input type="checkbox"/> | |
| the ability of muscles to work together | <input type="checkbox"/> | |
| none of the above | <input type="checkbox"/> | |
| don't know | <input type="checkbox"/> | |

A8. Visual perceptual delays can be seen in the following tasks **(mark all the correct options)**

- | | | |
|---|--------------------------|-----------------------------|
| unable to cut with scissors | <input type="checkbox"/> | <input type="checkbox"/> 74 |
| unable to differentiate between shape.
E.g. Square and rectangle | <input type="checkbox"/> | <input type="checkbox"/> 75 |
| unable to tie shoelaces | <input type="checkbox"/> | <input type="checkbox"/> 76 |
| unable to identify and name colours | <input type="checkbox"/> | <input type="checkbox"/> 77 |
| unable to differentiate between "b" and
"d". | <input type="checkbox"/> | <input type="checkbox"/> 78 |
| read "was" as "saw" | <input type="checkbox"/> | <input type="checkbox"/> 79 |

A9. When a learner enters grade 1, he/she, should be able to recognize and name the following body part: **(mark all the correct options)**

- | | | |
|------------|--------------------------|-----------------------------|
| head | <input type="checkbox"/> | <input type="checkbox"/> 80 |
| ankle | <input type="checkbox"/> | <input type="checkbox"/> 1 |
| eye lashes | <input type="checkbox"/> | <input type="checkbox"/> 2 |
| fingers | <input type="checkbox"/> | <input type="checkbox"/> 3 |
| wrist | <input type="checkbox"/> | <input type="checkbox"/> 4 |

A10. When a learner enters grade 1, he/she should be able to recognize and name the following 3-dimensional shapes **(mark all the correct options)**

- | | | |
|-------------------------|--------------------------|----------------------------|
| cylinders | <input type="checkbox"/> | <input type="checkbox"/> 5 |
| spheres (call it balls) | <input type="checkbox"/> | <input type="checkbox"/> 6 |
| polygons | <input type="checkbox"/> | <input type="checkbox"/> 7 |
| prisms (call it boxes) | <input type="checkbox"/> | <input type="checkbox"/> 8 |
| hexagon | <input type="checkbox"/> | <input type="checkbox"/> 9 |

A11. A grade 1 learner should be able to concentrate for: **(choose only one option)**

- | | | |
|-------------------|--------------------------|-----------------------------|
| 1 to 7 minute | <input type="checkbox"/> | <input type="checkbox"/> 10 |
| 8 to 17 minutes | <input type="checkbox"/> | |
| 18 to 30 minutes | <input type="checkbox"/> | |
| 31 to 45 minutes | <input type="checkbox"/> | |
| none of the above | <input type="checkbox"/> | |

A12. A grade 1 learner, at the end of the year, should be able to recognize and name the following 2-dimensional shapes **(mark all the correct options)**

circle ☐

☐ 11

square ☐

☐ 12

triangle ☐

☐ 13

rectangle ☐

☐ 14

oval ☐

☐ 15

A13. A grade 1 learner, at the end of the year, should be able to recognize and name the following positions: **(mark all the correct options)**

in front of ☐

☐ 16

next to ☐

☐ 17

behind ☐

☐ 18

right hand on own body ☐

☐ 19

left hand of teacher ☐

☐ 20

A14. A grade 1 learner, at the end of the year, should be able to copy the following shapes: **(mark all the correct options)**

cross ☐

☐ 21

circle ☐

☐ 22

diamond ☐

☐ 23

triangle ☐

☐ 24

octagon (eight sided block) ☐

☐ 25

square ☐

☐ 26

A15. When a grade 1 learner enters school he/she should be able to do the following: **(mark all the correct options)**

- | | | |
|--|--------------------------|-----------------------------|
| tie shoe laces | <input type="checkbox"/> | <input type="checkbox"/> 27 |
| can indicate the left and right hand of educator | <input type="checkbox"/> | <input type="checkbox"/> 28 |
| ride a 2 wheel bicycle | <input type="checkbox"/> | <input type="checkbox"/> 29 |
| write their name in cursive | <input type="checkbox"/> | <input type="checkbox"/> 30 |
| dress him/herself | <input type="checkbox"/> | <input type="checkbox"/> 31 |
| build a 20 piece puzzle | <input type="checkbox"/> | <input type="checkbox"/> 32 |
| can count 10 objects | <input type="checkbox"/> | <input type="checkbox"/> 33 |
| know and name 14 different colours | <input type="checkbox"/> | <input type="checkbox"/> 34 |
| jump over a rope, hip high | <input type="checkbox"/> | <input type="checkbox"/> 35 |

A16. Explain briefly what you understand with each of the mentioned terms:

delayed/poor gross motor skills ☐ 36

.....

delayed/poor fine motor skills..... ☐ 37

.....

delayed/poor visual perceptual skills..... ☐ 38

.....

hyperactivity/restlessness..... ☐ 39

.....

poor concentration/attention deficit..... ☐ 40

.....

A17. I will usually do the following if a child is fidgety/cannot sit still:

(choose only one option)

Send the child outside for 5 or more minutes

☐

☐ 41

Punish him/her for their behaviour and expect of them to stay behind during break or after school

☐

Allow the learner to move around in the class if it is not disruptive to other learners

☐

Other, specify:.....

☐ 42

A18. I will usually do the following if a learner has difficulty in the learning of the names of letters and numbers **(choose only one option)**

Repeat the same instructions until he/she comprehends/understands

☐

☐ 43

Ask the learner to stay after school and repeat instructions in the same way

☐

Try different ways of explaining the same concept

☐

Other, specify:.....

☐ 44

A19. I will usually do the following if a learner writes too slow and does not complete tasks/ assignments: **(choose only one option)**

Expect of the learner to complete the tasks on their own time after school

☐

☐ 45

Punish him/her for their behaviour and expect of them to stay behind during break or after school

☐

Demonstrate again the same instructions until he/she comprehend/understand

☐

Try to determine why the learner cannot write fast enough

☐

Ignore the fact that the learner never finishes his/her work

☐

Other, specify:.....

☐ 46

A20. Look at Plate 1. Which table height is the most appropriate table height for this girl? **(Choose only one option)**

☐ 47

Picture a ☐

Picture b ☐

Picture c ☐

None of them ☐

A21. Look at Plate 2: Indicate the correct sitting posture **(choose only one option)**

☐ 48

Picture a ☐

Picture b ☐

Picture c ☐

Picture d ☐

None of them ☐

A22. Look at plate 3: Why does the learner move her book to the side? **(choose only one option)**

☐ 49

She is tired ☐

She does not want to cross the midline
of her body ☐

It is good for her posture ☐

The educator positioned her this way ☐

I do not know ☐

A23. Look at plate 4: The correct pencil grip is: **(choose all the correct options)**

Picture a ☐

☐ 50

Picture b ☐

☐ 51

Picture c ☐

☐ 52

Picture d ☐

☐ 53

Picture e ☐

☐ 54

Picture f ☐

☐ 55

None of them ☐

☐ 56

PART B

NO: _____

Read each statement below, and respond honestly.

Official use

- O1 i) I believe that learners that are clumsy and cannot manage writing task properly must be accommodated in mainstream

☐ 57YES ☐No ☐

- ii) If you replied yes, how will you support these learners?

☐ ☐
58-59

.....

.....

.....

- O2 i) I believe that educators need special training to support learners that have difficulty in the learning of visual perceptual skills

☐ 60YES ☐No ☐

- ii) If you replied yes, what kind of training would you like to receive

☐ ☐
61-62

.....

.....

.....

- O3 i) Do you get irritated if you must repeat instructions to learners that struggle to write properly?

☐ 63YES ☐No ☐

- ii) If you replied yes, how do you respond? Give some examples of what you do when you get irritated

☐ ☐
64-65

.....

.....

.....

For each statement below, indicate the extent to which you agree or disagree with the statement by ticking the appropriate box.

1 = No, I disagree totally

2 = I disagree somewhat

3 = I agree somewhat

4 = Yes, I fully agree

For official
use

B1. I believe it is important to make modification or adaptations in activities for learners who experience difficulty with:

writing between lines

1	2	3	4
---	---	---	---

☐ 66

maintaining a comfortable sitting position when writing

1	2	3	4
---	---	---	---

☐ 67

learning the names of shapes

1	2	3	4
---	---	---	---

☐ 68

B2. I am willing to do extra preparation to support learners who need extra help with tasks such as:

discriminating between colours and naming of colours

1	2	3	4
---	---	---	---

☐ 69

catching a ball

1	2	3	4
---	---	---	---

☐ 70

cutting with scissors

1	2	3	4
---	---	---	---

☐ 71

B3. I easily get irritated if I must repeat instructions to learners who still do not know:

which hand is their right hand

1	2	3	4
---	---	---	---

☐ 72

how to maintain a good posture when writing

1	2	3	4
---	---	---	---

☐ 73

how to hold their pencil

1	2	3	4
---	---	---	---

☐ 74

B4. I will often ask my colleagues for advice or assistance to help learners who:

get confused between 'b' and 'd'

1	2	3	4
---	---	---	---

☐ 75

cannot hop on one leg

1	2	3	4
---	---	---	---

☐ 76

cannot colour between the lines

1	2	3	4
---	---	---	---

☐ 77

B5. I enjoy teaching learners that need extra help to learn tasks such as:

how to cut with scissors

1	2	3	4
---	---	---	---

☐ 78

concepts such as on top of, next to, behind

1	2	3	4
---	---	---	---

☐ 79

how to gallop

1	2	3	4
---	---	---	---

☐ 80

For each statement below, indicate the extent to which you agree or disagree with the statement by ticking the appropriate box.

1 = No, I disagree totally

2 = I disagree somewhat

3 = I agree somewhat

4 = Yes, I fully agree

For official
use

B6. I believe that a learner who behaves badly can be a learner with barriers to learning such as:

unable to identifying shapes, numbers and letters

1	2	3	4
---	---	---	---

	1
--	---

unable to write fast enough

1	2	3	4
---	---	---	---

	2
--	---

unable to kick a ball well

1	2	3	4
---	---	---	---

	3
--	---

B7. I believe I can identify the following learning barriers:

poor gross motor skills

1	2	3	4
---	---	---	---

	4
--	---

poor fine motor skills

1	2	3	4
---	---	---	---

	5
--	---

poor visual perceptual skills

1	2	3	4
---	---	---	---

	6
--	---

B8. I get upset if learners take too long to respond if I assist them in learning:

how to throw and catch a ball

1	2	3	4
---	---	---	---

	7
--	---

how to sort things from smallest to biggest

1	2	3	4
---	---	---	---

	8
--	---

how to cut with scissors on a line

1	2	3	4
---	---	---	---

	9
--	---

B9. I will usually do extra reading to educate myself so that I can support learners who:

cannot read well

1	2	3	4
---	---	---	---

	10
--	----

cannot write well

1	2	3	4
---	---	---	---

	11
--	----

are clumsy

1	2	3	4
---	---	---	---

	12
--	----

B10. I tend to spend more time with learners who are:

slow to learn colouring and writing

1	2	3	4
---	---	---	---

	13
--	----

slow to learn how to jump with a skipping rope

1	2	3	4
---	---	---	---

	14
--	----

slow to learn left and right on themselves

1	2	3	4
---	---	---	---

	15
--	----

For each statement below, indicate the extent to which you agree or disagree with the statement by ticking the appropriate box.

1 = No, I disagree totally

2 = I disagree somewhat

3 = I agree somewhat

4 = Yes, I fully agree

For official
use

B11. I am tolerant towards learners who are slow to understand:

how to write neatly

1	2	3	4
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	16
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how to discriminate between a "b" and a "d"

1	2	3	4
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	17
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how to jump with two legs 'jumping-jacks'

1	2	3	4
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	18
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B12. I believe that the following can be reasons why learners experience barriers with motor and perceptual tasks:

financial problems

1	2	3	4
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	19
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poor health

1	2	3	4
---	---	---	---

	20
--	----

family problems

1	2	3	4
---	---	---	---

	21
--	----

slow development

1	2	3	4
---	---	---	---

	22
--	----

B13. I will often contact the parents/caregivers of learners who are not progressing with:

writing tasks

1	2	3	4
---	---	---	---

	23
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tasks such as kicking and catching a ball

1	2	3	4
---	---	---	---

	24
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learning the letters and numbers

1	2	3	4
---	---	---	---

	25
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B14. I will often stay after school to support learners who experience difficulty with:

writing letters and numbers

1	2	3	4
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	26
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understanding spatial concepts such as on top, next to,
last, first, underneath

1	2	3	4
---	---	---	---

	27
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balancing and walking on a brick wall

1	2	3	4
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	28
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B15. I will often use extra learning aids to support learners who have difficulty in learning task such as:

the names of letters and numbers

1	2	3	4
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	29
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holding a pencil properly

1	2	3	4
---	---	---	---

	30
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balancing and ball skills

1	2	3	4
---	---	---	---

	31
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