Chapter 2
Theoretical Framework

2. Vygotsky's Theory of Development and Disontogenesis

Lev Semenovich Vygotsky developed a theory of human development in the 1920's and 1930's that is still being considered and developed today in Russia, as well as in the West. His work has generally remained unknown in the English-speaking West, partly because of the paucity of translated material and partly because of the "philosophical gulf that separates his views from those of non-Marxists" (Sutton, 1988, p. 89).

2.1. Vygotsky's Theory of Development

Vygotsky developed his theory of development within the scientific field of Pedology, which attempted to study the child as a total human being (Kozulin, 1990). Pedology "was intended as the all-round scientific study of child development in its every aspect, biological, psychological, educational and was regarded by its proponents as an essential feature of a developed educational system" (Sutton, 1988, p. 93).

Vygotsky (1966) described the development of a child as a complex dialectical process

> which is characterized by complex periodicity, disproportion in the development of various functions, metamorphoses or qualitative transformations of some forms into others, complex interlacement of processes of evolution and involution, complex crossing of external and internal factors, and a complex process of surmounting difficulties and of adaptation. (p. 90)

This sounds rather daunting and complicated; however, it was Vygotsky's attempt to highlight the complex dialectical nature of development, and to counter the beliefs that children are adults in miniature, who need to simply, quantitatively, increase their knowledge and their size (Vygotsky, 1966).

2.2. Learning Precedes Development

A fundamental idea underpinning Vygotsky's thoughts on development is that a complex dynamic relationship exists between development and learning, where learning guides and stimulates development, and thus development is dependent on the social learning environment (Vygotsky, 1983). Vygotsky (1983) believed that "learning always preceded development, and that the role of learning was especially great in sensitive periods" (p. 83). These sensitive periods, are time periods when a child is most sensitive to certain influences and external factors, and when certain mental processes are being formed at an especially effective rate in the child (Vygotsky, 1983). These sensitive periods must not be confused with Piaget's theory that cognitive development happens in relatively fixed stages in childhood (Piaget, 1970) or the sensitive periods discussed in Montessori theories (Montessori, 1974), as Vygotsky's sensitive periods do not happen in a prescribed universal sequence or age period, but are rather dependant on socio-historical and cultural factors (Chaiklin, 2003).

Thus, the role of the environment is a not only the condition in which the development of the child takes place, but is also a source of development, and is a leading factor in the child's development (Vygotsky, 1983). Vygotsky (1966) stated that "we become ourselves through others" (p. 96).

2.3. Two Lines of Development

Vygotsky (1993) suggested that there are two lines of development: the natural, biological, "physiological" line and the historical, cultural line of development (p. 12). The child develops along biological lines as dictated by genetics; however, the child also internalizes the cultural-historical line through the use of psychological tools in the social environment (particularly language). This cultural-historical line is superimposed on and radically transforms natural behaviour and development, where the natural line is not replaced, but is rather "sublated" or "embedded in the structure of the personality as a whole" (Vygotsky, 1993, p. 12). The interaction and association of these lines is of vital importance, particularly when one biological function fails. "In the case of such a failure, the second line of development (with the help of numerous socio-cultural tools) can enlist other biological functions to circumvent the weak point and build a psychological

(mental) superstructure over it" (Vygotsky, 1993, p. 13). Thus, a 'defect' does not result in an overall 'defective' or abnormal person (Vygotsky, 1993).

2.4. Psychological Tools

Cultural development takes place through the use, and acquisition, of cultural or psychological tools, which are artificial, historically developed cultural signs available to shape and organize the world (Vygotsky, 1993). Paul Arnold, an English psychologist, writes that "it was important for Vygotsky that each child does not have to 'reinvent' his or her own mind every generation. A child can therefore, potentially obtain the most modern ideas and ways of thinking" (in Vygotsky, 1993, p. 15). Any problem with acquiring cultural tools, such as language or maths symbols, concepts and meanings, would result in a learning difficulty.

2.5. Learning takes place through Internalization and Imitation

A child learns through interactions with others, in that the child begins to practice with respect to herself the same forms of behaviour that others formerly practiced with regard to her. Thus, the child internalizes the social forms of behaviour that she participates in (Vygotsky, 1966). Vygotsky (1966) states this principle repeatedly in different ways such as that "all that is internal in the higher mental functions was at one time external" (p. 93) and "the relations between the higher mental functions were at one time real relations among people" (p. 94). This highlights the importance that Vygotsky (1966) placed on speech, as it is the mediating, cultural-historically created tool that people use to interact socially with others, and through the imitation of the social tool of speech the child develops internal regulating speech and higher mental functions. Vygotsky's general genetic law of cultural development (1981b, in Wertsch & Tulviste, 1992) elaborates on this idea:

> Any function in the child's cultural development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane. First it appears between people as an interpsychological category, and then within the child as an intrapsychological category. This is equally true with regard to

> voluntary attention, logical memory, the formation of concepts and the development of volition... [It] goes without saying that internalization transforms the process itself and changes its structure and functions. Social relations or relations among people genetically underlie all higher functions and their relationships. (p. 163)

This means that any psychological function occurs twice in the development of the child, once as a function of collective activity, and then again as an individual operation, where the psychological activity has been internalised (Vygotsky, 1993).

2.6. The Zone of Proximal Development (ZPD) in Child Development

Vygotsky introduced the idea of the Zone of Proximal Development (ZPD) in a lecture in March 1933, although he pointed out that it is not originally his own idea. He died only 15 months later, and so was not able to fully elaborate his ideas on the ZPD (Meira & Lerman, 2001). Palinscar (1998, in Chaiklin, 2003) states that the ZPD is "probably one of the most used and least understood constructs to appear in contemporary educational literature" (p. 41). I believe that one has to look at the ZPD within Vygotsky's general theory of development as well as his theory of disontogenesis in order to get an understanding of the concept in context.

The Zone of Proximal Development was introduced by Vygotsky as part of his general theory of child development. Vygotsky believed that his theory needed to be in the form of an explanatory model, as opposed to being only descriptive. He considered it important that a developmental theory be organized by principles that can explain development "as a single process of self development" (Vygotsky 1998b, in Chaiklin, 2003, p. 46). This model should consider the whole child as an integral person; however childhood can be divided into periods (Chaiklin, 2003).

Each period in childhood is characterized abstractly by a psychological structure, in which different functions dominate in different sensitive periods. Childhood consists of a series of relatively long, stable periods (of one to four years) interjected by shorter periods of crisis (or critical periods of profound change in the child's development) (Mahn, 2003). Each period has a central new-formation, in relation to which

psychological functions develop during that period. The central new-formation is a consequence of the "child's social situation of development with relevant psychological functions that are not yet mature" (Chaiklin, 2003, p. 47). In other words, it is the child's social interactions that enable him or her to perform those new formations / psychological functions of the next age period, which the child is not able to perform independently at this time. These age periods are historically and materially constructed, in that they are constructed through the history of human practices and in the tasks and interactions with others and the material world. Thus, these periods do not reflect a biological necessity (Chaiklin, 2003) in the way that Piaget's stages of development do (Piaget, 1970).

Chaiklin (2003) suggests that the idea of the ZPD is used for two different purposes in terms of psychological development. One purpose is to identify the kinds of maturing psychological functions (and the social interactions required) that are involved in the transition through age periods. For each age period there is a group of psychological functions that is maturing in relation to the central new-formation, and this gets restructured to form the structure of the next age period. Chaiklin (2003) refers to this as the "objective" ZPD, which is the central new-formations and age periods that a child can be expected to go through during development (keeping in mind that it is historically and materially constructed) (p. 49).

The second purpose of the ZPD is to identify an individual child's current state of maturing functions in relation to the expected development of these functions needed for transition through the age periods. This is the "subjective" ZPD (in which you can assess the current state of an individual's development in relation to the objective zone) (Chaiklin, 2003, p. 50). In summary, the ZPD "is a way to refer to both the functions that are developing ontogenetically for a given age period (objective) and a child's current state of development in relation to the functions that ideally need to be realised (subjective)" (Chaiklin, 2003, p. 50).

The ZPD can be used to assess individual children as to the state of their maturing functions and this contributes to the development of appropriate pedagogical interventions. Thus the individual assessment is linked to a theoretical understanding of the general processes by which an individual develops. Vygotsky believed that a true

diagnosis of a child's functioning "must provide an explanation, predictions and scientific basis for practical prescription" (in Chaiklin, 2003, p. 51).

Vygotsky suggested that a person's ability to imitate is the basis for a subjective ZPD. His conception of imitation was not a mindless copying, but presupposed some understanding of the structural relations involved in the problem. "Imitation is possible only to the extent and in those forms in which it is accompanied by understanding" (Vygotsky 1997, in Chaiklin, 2003, p. 51 – 52). What this means is that the child can imitate only what lies within his or her ZPD (which involves the maturing functions of the next age period). Vygotsky (1997a in Chaiklin, 2003) wrote that "the circle of available imitation coincides with the circle of actual development possibilities" (p. 53). Thus, what the child is able to achieve through imitation and social interaction is an indicator of the functions that are about to mature, but are inadequate for independent performance.

Collaboration between an adult (or older child) and a child provides an opportunity for imitation, which is a way to identify the maturing psychological functions in the child's subjective ZPD. Vygotsky gives the example of two children whose mental age had been measured by standardized tests to be 8 years. After collaboration in assisted problem solving, one child solved problems consistent with standardized (independent) problem solving of a 12 year old, and the other of a 9 year old. Vygotsky pointed out that "with respect to maturing functions, one went four times further than the other" (in Chaiklin, 2003, p. 55). This means that children have their own unique size of their subjective ZPD, which is in relation to what is expected for their age period and dependent on the nature of the social interaction and collaboration that they experience. Thus this size is not fixed, but varies according to the age period, the nature of social interaction and the child's own ability to use imitation and collaboration to realize performance beyond what he is she is able to do independently.

Chaiklin (2003) describes an article written by Vygotsky (which is neither translated or readily available) in which children are tested and identified to have high or low IQ (through standardized testing) as well as small or large ZPD's (through collaborative problem solving assessment). This experiment found that the size of the ZPD was more predictive of subsequent school success, than the size of the IQ was. "In other words, the zone of proximal development gave a better indication for predicting or

understanding future intellectual development than a measure of independent performance because it focuses on maturing functions" (Chaiklin, 2003, p. 56).

2.7. The Role of the Collective in Development

A fundamental principle in the education of children is that a child should be involved in active participation in collective life, and so develops co-relations with his peers (Vygotsky, 1993). Development takes place through relationships and collaborative activity with other humans. Vygotsky (1993) also acknowledged that for some children "social retardation" can hinder their development (p. 19). These children are retarded or underdeveloped because of difficult or adverse conditions in their lives or at school, and that these children may start to thrive if circumstances are changed (Vygotsky, 1993).

2.8. Vygotsky's Theory of Disontogenesis

A less well known part of Vygotsky's general theory of child development is his theory of "disontogenesis" (distorted development) which occurs when a child with an organic disability is socialized (Vygotsky, 1993). Vygotsky is considered one of the founders of special psychology and special education in Russia (Vygodskaya, 1999). The uniqueness of his approach lies in his perception of disability as a socio-cultural developmental phenomenon, which differs remarkably from the purely biological approach of his day. Vygotsky's daughter, Dr Gita Vygodskaya (1999), who is herself a psychologist in Russia, gives the following quote from her father: "a disability in and of itself is not a tragedy, it is only an occasion to provoke tragedy" (p. 330). This highlights the importance that Vygotsky placed on understanding development, and equally importantly, how to compensate, remediate and rehabilitate children with special needs.

Gindis (1999b) writes that there is a sad irony in the fact that Vygotsky's ideas have not been as fruitful in the domain of special education as in other areas of psychology and education, since special education played such a distinct role in his professional activity and personal life. Many of the major concepts of his cultural-historical theory were formulated and elaborated within the special education theoretical framework and terminology (Gindis, 1999b). A brief look at his work in special education shows how central this work was to his theorising and practice.

In 1924 Vygotsky was invited to work at the Moscow Institute of Psychology, where he was soon appointed as head of the section for the education of children with physical and mental disabilities (Holowinsky, 1988). In November of that year, Vygotsky organized the first Congress on Special Education in Russia. Vygotsky edited a collection of articles, and in the introduction he wrote about the significance of the problem of teaching and raising children with disabilities. He called on scholars, teachers and society to solve this problem creatively and responsibly. Vygotsky initiated research into this field and supervised publication and widespread distribution of relevant literature and information brochures. He also took an active part in the training of specialists in special education through his teaching in colleges and universities (Holowinsky, 1988). In 1926, Vygotsky created a laboratory for the study of children with disabilities, which three years later was upgraded to the "Experimental Institute for Special Education" (Vygodskaya, 1999, p. 331), which still exists today under a different name. He ran special conferences at this Institute which attracted a wide audience from diverse disciplines. Vygotsky would present in-depth case studies of the children he investigated, which had practical value, but also enriched his theory of special education (Vygodskaya, 1999).

Vygotsky conducted his research within the field of Defectology, which corresponds to contemporary special education. The word "defectologia" (which translates to defectology in English, but does not have a suitable English term) literally means "study of defect" (Gindis, 1999b, p. 334), and referred to the discipline which studies the handicapped, their development, teacher training and teaching methods (Vygotsky, 1993), and does not hold the same negative connotations in Russian that it does in English (Gindis, 1999b).The term refers to the study of the handicapped and methods of their evaluation, education and upbringing (Gindis, 1995b). To be precise, in Russia this term covers the following disabilities: children who are hard of hearing or deaf, children who are visually impaired or blind, children with mental retardation and children who are speech-language impaired (Gindis, 1999b). Gindis (1999b) points out that defectology did not include psychopathology or emotional disturbance, as this fell into the domain of medicine. Defectology did not include the term 'learning disabilities' either, as "learning disability, as it is understood in contemporary United States, was unknown in the Russia of Vygotsky's time" (Gindis, 1999b, p. 334). Instead, Vygotsky writes about "backward

children" (Sutton, 1980, p. 160) as well as "difficult children" which includes children with educational or learning difficulties (Vygotsky, 1987, p. 56). Vygotsky writes about "difficult children" as those who are difficult to educate because they either have "few or very low natural capabilities" or they are difficult to manage because of "tendencies in their behaviour and character" (Vygotsky, 1993, p. 140).

It was within this field of research that Vygotsky developed his Theory of Disontogenesis (meaning distorted development). This theory forms part of his general theory of development. Vygotsky believed in deep links between "normal" and "abnormal" behaviour, as both were part of human development and followed the same patterns of general formation (Gindis, 1995d, p. 77). Thus, Vygotsky saw the distorted development that can occur in a child with a disability as taking place in the same way as general development.

It was through Vygotsky's research that he was able to present a better understanding of what was known as 'infantalism' in Russia in the 1920's. Vygotsky (1987) suggested that infantilism was in essence a

> retardation of the qualitative reorganization of mental functions (thinking, attention, memory, etc.) as a result of which the child's development retained its previous organization. The formation of complex mediated forms of behaviour was delayed, the children had more difficulty in grasping cause-and-effect relationships and the difference between situational and categorical relations, they were unable to assume a critical attitude towards their own behaviour and actions, and their voluntary activity was disordered. (p. 87)

Vygotsky (1993) stated that for a long time, "primitivism" in a child was considered to be a pathological form of childhood development and was confused with mental retardation, instead of, what Vygotsky believed, is a lack of appropriate cultural development and acquisition of culturally developed psychological tools. This explanation of infantilism can be regarded as similar to the symptoms experienced by LD children today. Some kind of biological or primary defect triggers a qualitatively different reorganization or a stagnation of reorganization of higher mental functions, which is interwoven with (adaptive or maladaptive) compensatory mechanisms to form secondary defects all within a particular social environment. Thus, the intricacies of the qualitatively different

abnormal development that occurs in some children cannot be simply or quantitatively understood.

2.9. The Importance of Socio-cultural Influences

Vygotsky (1993) understood disability not as a biological impairment with psychological consequences, but as a socio-cultural phenomenon. Vygotsky argued that a disability is perceived as an abnormality only when it enters the social context (Gindis, 1999b). The human eye, ear, brain and limb are not just physical organs, since any impairment of these "leads to a restructuring of social relationships and to a displacement of all the systems of behaviour" (Vygotsky 1983, in Gindis, 1999b, p. 335). What this means is that a disability varies psychologically in different social environments. As Vygotsky (1983, in Gindis, 1999b) pointed out: "the blindness of an American farmer's daughter, of a Ukrainian farmer's son, of a German duchess, of a Russian peasant, of a Swedish proletarian, these are all psychologically different facts" (p. 335). Thus, it is the child's social milieu, and not the organic impairment, that modifies a course of development and leads to distorted development (Gindis, 1995d).

When looking at the socio-cultural influences on development there is a need to look beyond the parent and teacher as the source of social influence and to consider the larger socio-cultural influences:

> The child grows and develops in an extremely individual cultural-social environment which reflects the complex path of the historical development of the given people and the complex system of economic and cultural conditions of its present-day existence. (Sutton, 1988, p. 95)

The understanding and meaning that society attributes to a primary disability plays an important role in the development of a secondary disability. Vygotsky (1993) discusses the complex meaning that was attributed to the state of blindness in the Middle Ages. Blindness was viewed first and foremost as an immense misfortune, "to which people reacted with superstition, fear and respect" (p. 98). However, added to this, was the "general conviction that the blind possess higher mystical powers of the soul, that in place of their physical vision, they gain spiritual knowledge" (Vygotsky, 1993, p. 98).

2.10. Primary and Secondary Disabilities

The core concepts within Vygotsky's Theory of Disontogenesis are the ideas of a primary disability, a secondary disability and their interactions. A primary disability is an organic impairment due to biological factors, which then develops into secondary disabilities where the defect is "strengthened, nourished, and reinforced by its social consequences" (Vygotsky, 1993, p. 92). A secondary disability is the distortion of higher psychological functions due to social factors. An organic impairment may prevent a child from mastering some social skills and acquiring knowledge at a proper rate in an acceptable form. However, it is the child's social milieu, which modifies his or her course of development and results in distortions and delays (Gindis, 1999b). Thus, secondary disabilities, such as "behavioural infantilism or primitivism of emotional reactions" in individuals with disabilities are acquired in the process of social interaction (Gindis, 1999b, p. 335). Vygotsky saw the principal problem of a disability as not the organic impairment itself, but the social implications that occur.

> An organic defect is recognised by society as a social abnormality in behaviour. Expectations and attitudes of social milieu and conditions created by the society influence the access of a child with disability to socio-cultural knowledge, experience and opportunity to acquire psychological tools.
>
> (Gindis, 1999b, p. 335)

In Vygotsky's general theory of development, he describes two lines of psychological development:

> The line of natural development which is closely bound up with the processes of general organic growth and the maturation of the child [and]...the line of cultural improvement of the psychological functions, the working out of new methods of reasoning, the mastering of the cultural methods of behaviour.
>
> (Vygotsky 1994, in Mahn, 2003, p. 119)

Vygotsky believed that it is a progressive divergence in social and natural development which leads to social deprivation as the society responds to the biological impairment (Gindis, 2003).

The most frequent secondary complication that arises out of, and exacerbates, learning problems is the underdevelopment of the higher psychological functions, such as "memory, thinking, character etc. that emerge and take shape in the process of a child's social development" (Vygotsky, 1987, p. 89) as well as a lack of motivation (Vygotsky, 1993). In addition, the immediate consequence of the defect is to diminish the child's social standing, "the defect manifests itself as a social aberration" (Vygotsky, 1993, p. 35). Vygotsky (1993) refers to Adler's idea of an "inferiority complex" as the psychological complex which develops as a result of the child's diminished social position due to his handicap (p. 35). Vygotsky (1993) agreed with Adler that the "first and basic point of the educational process is a struggle against an inferiority complex" (p. 35).

Thus, there is a link between the line of natural development and primary disability, and the line of cultural development and secondary disability. Using the idea of these two lines of development, Vygotsky differentiated the development of children with neurological, sensory or physical impairment from children who were intact organically but had endured severe cultural deprivation and educational neglect (Gindis, 2003). Vygotsky, using the unfortunate terminology of his time, called the first group "defectives" and the second group "primitives" (for which Feuerstein has a more apt description of "retarded performers") (Gindis, 2003, p. 205).

The need for a distinction between primary and secondary delays in development is not just of theoretical interest, but also of a truly practical interest, as secondary complications and delays are the "most susceptible to therapeutic and pedagogical intervention" (Vygotsky, 1987, p. 90). The higher functions which are acquired during the cultural line of development are more trainable and remediable because they are not phylogenetic but acquired during ontogenesis (Vygotsky, 1993).

Thus, what might start out as a primary disability which involves a difficulty in perceiving the difference between shapes of alphabetic letters, can result in the secondary

complications of the labelling of the child as learning disabled or dyslexic, as well as the child feeling isolated from his peers, teased and bullied. Other secondary complications such as low motivation, poor memory skills, poor self discipline, truancy from school, behavioural problems and a low self-concept can lead to further secondary complications where the child fails to learn a number of other skills considered important in her culture. If we apply Vygotsky's ideas about remediation, it is the secondary complications that need to be addressed through a specialised diagnosis and prognosis, while the primary disability can be addressed through the use of compensation.

Vygotsky (1987) describes very eloquently how a child lacking appropriate cultural development acquires a low self-concept as a secondary complication brought about in his social environment:

> First, there is a clash with the extremely low esteem in which this child is held by his environment; then, there are the objective difficulties that are insurmountable for the child, and the fact that the child both objectively and subjectively begins to become aware of [her] diminished worth, and to react to it by developing a whole series of tendencies in [her] behaviour, and by establishing character traits of a clearly neurotic nature. (p. 90)

2.11. A Qualitatively Different Development

Traditionally, a child with a disability has been considered to be either an underdeveloped or developmentally delayed child, or a regular child lacking a physical or sensory organ. Therefore, from this view, the difference between a child with a disability and her non-disabled peer is only quantitative (Gindis, 1999b). Vygotsky did not believe in this conception, and rather highlighted the qualitative uniqueness of the development of a child with a disability. Vygotsky (1983 in Gindis, 1995d) wrote in "The Fundamentals of Defectology": "a child whose development is impeded by a handicap is not simply a child less developed than [her] peers; rather, [s]he has developed differently" (p. 78). Each handicapped child is different because the psychological tools on which she relies are different (Vygotsky, 1993). Vygotsky also emphasized the dynamic, constantly changing nature of disability. The content and structure of a disability changes during development, under the influence of education and remediation (Gindis, 1999b).

There are two major differences in the development of a child with a disability. The first is that the formation of compensatory strategies or mechanisms takes place, and the second is the emergence of social complications of the disability (Gindis, 1999b). What this means, is that educators should aim for two things, the improved development of compensatory strategies and to change negative societal attitudes towards individuals with disabilities.

2.12. The Role of Compensation in the Development of a Disabled Child

Vygotsky believed that the qualitatively different development of an individual with a disability requires a special approach to education. In terms of the development of compensatory strategies, "the effectiveness of the compensatory strategies may be relatively independent of the severity or type of the child's disability. Timeliness and appropriateness in the methodology used are more important" (Gindis, 1999b, p. 337). Vygotsky also maintained that pure biological compensation, such as traditional sensori-motor training, as a method of compensation has limitations, whereas the domain of higher psychological activities has no limits. Vygotsky (1983, in Gindis, 1999b) wrote that "training sharpness of hearing in a blind person has natural limitations, compensation through the mightiness of the mind (imagination, reasoning, memorisation etc.) has virtually no limits" (p. 337). In his essay "Defect and Compensation", Vygotsky wrote about the "two-sided nature" of a handicap. The handicap involves the underdevelopment or absence of the functions related to the organic defect, as well as the formation of an "adaptive-compensatory mechanism" (in Gindis, 1999b, p. 338).

The most effective compensation is achieved through the development of higher psychological functions, through the interaction with the object-orientated and socio-cultural world (Vygotsky, 1993). Compensation should focus on the intensification of cultural enlightenment, strengthening of the higher psychological functions, the quality of interaction with adults, and the building of social relations with a collective (such as an organized group of peers) (Gindis, 1999b). Thus the aim is to compensate for the primary disability, as well as address the secondary disability syndrome, by countering the negative social consequences of the primary disability. If untreated, secondary disability may exacerbate the primary disability, as observed by Hayward (1989, in

Gindis, 2003) "the experience of being retarded makes one more so" (p. 203). Thus, the socio-cultural reaction to a child experiencing difficulties in reading and writing can lead to a "learned learning disability" if no intervention is implemented (Gindis, 2003, p. 203).

Compensatory strategies are not merely mechanical substitutions of impaired functions, but are rather aimed at mastering psychological tools in order to acquire cultural forms of behaviour (Gindis, 2003). The concept of internalization of psychological tools as an important mechanism of development has a special importance for compensation in the field of special education (Gindis, 1997). Vygotsky believed that the creation of alternative but equivalent roads for cultural development is an important part of compensating for a physical or mental impairment (Gindis, 1999b). Vygotsky (1983 in Gindis, 1999b) claimed that "different symbolic systems correspond to one and the same content of education...Meaning is more important than the sign. Let us change signs but retain meaning" (p. 338). Thus by using different signs (such as Braille reading, sign language, lip reading, finger spelling) it is possible for a disabled child to have access to meaning and cultural development. Vygotsky saw remedial education as having the task of creating disability-specific compensatory strategies, and the notion of a "disability-specific psycho-educational profile" has been elaborated by Vygotsky's followers in Russia (Gindis, 2003, p. 206).

Vygotsky (1993) even extends the concept of compensation to the possibility that a child may have the potential to turn an "inferiority complex into a superiority complex" (p. 53). Vygotsky (1993) employs a Greek story to explain this idea:

> Having struggled with a speech defect, Demosthenes went on to become one of Greece's greatest orators. It was said of him that he acquired his great art by increasing his natural handicap, by magnifying the obstacles. He practiced his speech pronunciation, filling his mouth with stones and trying to overcome the roar of the ocean waves which muffled his voice. (p. 53)

Vygotsky (1993) refers to Adler's dialectical thinking with regard to overcompensation: that personality develops by means of opposition. "A defect, ineptitude, or inferiority is not simply a minus, a shortcoming, a negative attribute, but also a stimulus for overcompensation" (Vygotsky, 1993, p. 54). With a defect comes "combative

psychological tendencies" and the potential for overcoming the defect, and Vygotsky writes that "education has neglected the positive forces created by a defect" (Vygotsky, 1993, p. 57).

Vygotsky (1993) does acknowledge that compensation does not always occur in a positive or successful way. The creation of "new, roundabout paths for development" can result in either success or failure (Vygotsky, 1993, p. 17). "To think that every defect will inevitably have a fortunate outcome is just as naïve as it is to think that every illness will certainly be cured" (Vygotsky, 1993, p. 62). The outcome of compensation depends on many factors, particularly on the reserves or strengths of the child and the successful interaction with the social milieu. Compensation can foster "creative, unendingly diverse, sometimes profoundly eccentric forms of development" (Vygotsky, 1993, p. 33) and so compensation could lead a child along a path of "fictitious or false equalization of his deficits" (p. 127). An example of this would be a child who memorizes whole texts in order to prevent others from knowing that she cannot read.

2.13. A Positive Differential Approach

It was in his thinking about compensatory development of higher psychological functions and rehabilitation of secondary effects, that Vygotsky (1993) suggested a "positive differential approach", which involves the identification of a disabled child from a point of strength and potential, rather than disability. Vygotsky, with sarcasm, called the psychometric approach to the assessment of a disabled person an "arithmetic concept of handicap" because it viewed the disabled person as the sum of her negative characteristics (Gindis, 1995d, p. 79). Vygotsky focused rather on the search for positive capabilities and qualitative characteristics in the development of handicapped children (Gindis, 1995d).

> One must keep in mind that any child with a disability is first of all a child and only afterwards an impaired child...One must not perceive in the child with a disability only the defect, the 'grams' of the illness and not notice the 'kilograms' of health which children possess.
>
> (Vygotsky 1995, in Vygodskaya, 1999, p. 331)

Sutton (1988) suggests that:

> till now the huge majority of investigations in this area have been dedicated *towards purely negative goals*. These investigations attempted to establish what the given child lacks in comparison with the more developed child, what sides of his character are depressed, weakened, inhibited, what flaws his mind and behaviour display in comparison with the child from more cultured people.
>
> (p. 96, italics in original).

Vygotsky (1993) stated that in an analysis of a disabled child, the defect alone tells the psychologist nothing unless the degree of compensation and the lines of counterbalancing behaviour is taken into account, it is important to know what attempts the child makes in terms of compensation for difficulties. Vygotsky (1993) suggested that

> in place of the general definition of feeblemindedness or a learning disability, there [should be] an attempt, first of all, to determine how it is expressed; secondly, to examine how the child [her]self attempts to cope with this phenomenon; and third, to learn which path the school must take in order to overcome the defects afflicting the given child. (p. 148)

Vygotsky was an unfailing optimist in terms of the potential for development or compensation in children. He believed that "at any given moment, a child is full of unrealized potentials, and these offer a wealth of creative resources on which a handicapped child, or any child, may and must build" (Vygotsky, 1993, p. 13).

2.14. Vygotsky's Criticisms of the Psychometric Approach

Vygotsky "defined the limitations of IQ tests based on the idea of disability as a process, not a static condition" (Gindis, 1999b, p. 337). He recommended a developmental assessment, which should concentrate on mental processing and certain qualitative metacognitive indicators (such as cognitive strategies used by the child, the type and character of mistakes, the child's ability to benefit from help and the child's emotional reactions to success and failure) (Gindis, 1999b). Vygotsky believed that psycho-educational assessment should concentrate on mental processing (the actual cognitive strategies used by the child) and not the products, such as an IQ score (Gindis, 1997).

Gindis (1997) points out that "traditional standardized assessment trails the child's cognitive development to the point of 'failure' in ... [her] individualized (independent) functioning" whereas assessment in the Vygotskian tradition leads the child to the point of her achievement of success in collaborative activity (p. 13).

In the essay "Difficult Child", Vygotsky (in Gindis, 1995d) described the case of a bilingual girl (from the nation Tater in the Russian federation) who was diagnosed as having mental retardation. Vygotsky found through a detailed assessment that her "primitivism" was due to her limited knowledge of Russian as well as her native language. Vygotsky concluded that she had not achieved the level of acculturation expected for her age, and thus was developmentally blocked, and was not mentally retarded (Gindis, 1995d, p. 80).

"Vygotsky criticized contemporary psychometric methods. He pointed out that Pedology will become a science only when it learns to diagnose not only on the basis of arithmetical averages of tests, but on the analysis of psychological processes" (Holowinsky, 1988, p. 126). Vygotsky (1987) also criticized the purely quantitative conception of child development that underlies psychometry, where child development is conceived as a purely quantitative process of accumulating units – "a year of development is always a year, whether this is from the age of 6 to the age of 7 or from the age of 12 to the age of 13" (p. 88). Thus, purely psychometric studies of children "economize on the most important ingredient in any scientific endeavour, namely, thought" (Vygotsky, 1987, p. 97). In his criticism of psychometry, Vygotsky (1987) highlighted the difference between psychological measurement and psychological diagnosis, and brought into focus the idea of an etiological or causal diagnosis, which looks at the causes of the primary and the secondary disabilities.

It seems that Vygotsky (1993) was particularly harsh towards the field of psychometry because he wanted to highlight that the primary reliance on psychometry for a diagnosis is not responsible or useful. He stated that:

> as soon as an element of responsible diagnostics appears in psychological treatment, psychological measurements, as such, resume secondary

> importance. Psychometrics offers only a point of departure for analysis, or provides the background for composing the picture. (p. 285)

2.15. A More Qualitative Approach to Understanding and Diagnosing Children

Vygotsky's ideas about assessment and the ZPD are considered the foundations of a new approach called Dynamic Assessment (DA) which is a theory-driven approach following notions from Vygotsky's theory of development (Lidz & Gindis, 2003). Dynamic Assessment is an interactive assessment procedure which follows a "test-intervene-teach-retest" format, focussing on cognitive processes and metacognitive characteristics of the child (Gindis, 2003, p. 208). An evaluator analyses the interaction and test results to gain valuable information about the child's modifiability, her responsiveness to an adult's mediation and her amenability to instruction and guidance (Gindis, 2003).

Vygotsky (1993) highlighted the importance of a meaningful diagnosis and prognosis when assessing a child. Vygotsky (1993) questioned the value that diagnoses sometimes hold for the parent and the educator of a child, with an interesting anecdote:

> The object of the consultation was an unmanageable boy of eight, just starting school.... According to his mother, the child had strong and unmotivated fits of temper, passion, wrath and anger. In such a state, he could be dangerous to those around him; he might throw a stone at another child or attack someone with a knife... [After investigation] we recalled the mother to convey to her the results...."Your child," said the psychiatrist, "is epileptoid." The boy's mother became attentive and started to listen closely. "What does that mean?" she asked. "It means," the psychiatrist told her, "that the boy is irritable, wrathful, and temperamental; it means that when he is angry he forgets himself and he can be dangerous to those around him..." Disillusioned, the mother exclaimed, "But I have told you all this myself. " (p. 242)

Vygotsky (1993) describes this as a memorable event that highlighted for him the importance of a useful pedological[3] diagnosis, prognosis and prescription of what needs be done in all areas of the child's functioning.

The assessment of the size of the ZPD for disabled children can offer valuable insights into what maturing functions are available. This can form the basis of an explanatory understanding of the unique developmental path of a child with special needs, and is also useful in developing a pedagogical and psychological intervention based on a positive differential approach. "Remediation as well as development of higher psychological functions in a disabled child depend upon the quality and quantity of mediating activity personalized in a teacher and in the structure and organization of the learning environment" (Gindis, 2003, p. 210). The concept of the ZPD can be used in the assessment of the maturing functions available for the child in the next or proximal phase of development, and in the planning of a remedial and educational programme, in which the mediating activity of the teacher and peers can assist in countering secondary disabilities.

2.16. Vygotsky's Ideas about Remediation and Education of LD Children

Vygotsky's unique vision for the future of special education was inclusion based on positive differentiation. Vygotsky's views about inclusion may be a bit confusing, as it changed over time. In an attempt to argue against the "social prejudices against the handicapped", Vygotsky (1993, in Gindis, 2003) did recommend "normalization through inclusion", early in his career (p. 212). However, in his later writings Vygotsky expressed the need for a truly differentiated learning environment, which can fully develop the higher psychological functions and personality of a disabled child. Vygotsky moved from an understanding of inclusion which was geographical and temporal (in the same classroom at the same time) to a more socio-cultural concept of integration (where the disabled child is, for example, taught the same curriculum but in a positive differential way) (Gindis, 2003). The educational content of special schools should be the same as those of mainstream schools (Vygotsky, 1993), but the method and psychological tools

[3] Vygotsky (1987) uses the term "pedological diagnosis" to refer to an all encompassing diagnosis of the child, which includes all aspects of the child in a holistic manner – physiological, social, emotional and educational.

that are employed need to be tailor-made to the diagnosis and prognosis of the students, when assessed in a positive differential way. Thus, Vygotsky was equally critical of what he called "unlawful segregation" of students with disabilities and "mindless mainstreaming" of children with special needs (in Gindis, 1999b, p. 338). He maintained that a special system with special methods is needed to cater to the modified and alternative educational methods required for different disabilities. This system should take place in a mainstreamed socio-cultural situation where compensation and rehabilitation for secondary defects can take place through normal social experiences (Gindis, 1999b).

Although a special pedagogy is needed, Vygotsky (1993) also reminds his readers of the need to incorporate normal social education into special education. He states that "only an incompetent doctor would deprive his patient of normal food, prescribing just medicine and pills" (p. 82 – 83). Thus, it is necessary to educate a child, not as a handicapped child, but as a child, "pedagogy of children with defects will become a defective pedagogy" (Vygotsky, 1993, p. 83).

A qualitative understanding of disability also negates the placement of children into groups or special schools based only on a quantitative analysis of their negative characteristics, where the children have little else in common. Vygotsky (1983) insists on the search for positive attributes and a qualitative uniqueness in children, and that education should focus on the comprehensive diagnosis, compensation and remediation of abnormal development. Vygotsky (1993) maintained that special schools should share with the general educational system the Marxist social goals of "productive labour and self-sufficiency", and this is what all educational systems should be striving for (p. 5).

A very significant part of study and diagnosis of disabled or difficult children in Vygotsky's Theory of Disontogenesis is the provision of a concrete and meaningful pedagogical prescription (Vygotsky, 1987). A clinician should provide a "fully defined, distinct, and clear indications concerning the measures that must be applied to the child relative to the symptoms that are to be eliminated by those measures" (Vygotsky, 1987, p. 101). Thus, a therapeutic-pedagogical prescription should be specific to the child's primary and secondary symptoms, as well as the child's qualitatively unique and

different structures and psychological processes that have developed in the process of disontogenesis (Vygotsky, 1983).

For Vygotsky, the central factor to be studied is the structure of the environment, in order to develop a plan on how to assist children (Sutton, 1988). He maintained that it is not the biological differences in human type that is the primary issue, but rather the structure, dynamics and contents of the environment that is most important as a formative influence on a child (Sutton, 1988). However, Vygotsky was not an environmental reductionist, as he did acknowledge the influence of "biological peculiarities which undoubtedly exist and show an influence on upon the type of the child's development" (Vygotsky, 1929b, in Sutton, 1988).

2.17. Applicability of Vygotsky's Theory to the South African Context

Vygotsky formulated his theory of child development in a period of rebuilding Russia following the revolution and civil war, and attempted to address how best to remediate children whose development was disturbed. "The complexity of the conditions made it extremely difficult to distinguish between purely medical conditions, such as malnutrition, birth defects and complications following illness, and the socio-psychological problems related to homeless and lack of education" (Kozulin, 1990, p. 196). In Russia in the period 1920-1921 there were about 7 million homeless, orphaned, vagrant, abandoned and neglected children following the years of war, revolution and famine (Vygotsky, 1993). Vygotsky believed that you could only adequately address problems in development in children if you fully understood the etiology and development of the problem. South Africa can be compared to the Russia that Vygotsky experienced, in that the problems of development in South African children are probably the result of a range of medical, social and psychological factors that can be hard to distinguish unless carefully studied. I suggest that it is also just as important in South Africa today to make a detailed study of the child's disontogenesis in order to offer an informed and meaningful diagnosis and prognosis and to "maintain a strict distinction between primary and secondary aberrations and delays in development" (Vygotsky, 1987, p. 89).

Following the periods of unrest in Russia, in 1931 a decree was issued which "emphasized that special schooling was but a part of the broad mass educational

system. The decree guaranteed education to all, including the handicapped...however, the newly streamlined system was ill-equipped to fulfill that promise in special schooling" (Vygotsky, 1993, p. 7). I believe that South Africa, in this period where the country is busy implementing inclusive education, can learn from the past in that there is a need for research into how best to diagnose and provide effective remediation to children who have developed differently.

Vygotsky's theory of how development occurs in LD children is particularly useful in the South African context, as South Africa has a large group of children with "extrinsically generated special educational need(s)" (Donald, 1993, in Mazansky, 1997) as a result of inequalities in social and educational resources during and after the Apartheid period. Vygotsky's ideas of development allow for the incorporation of the socio-historical context into the understanding of the development of learning disorders.

In summary, I would suggest that Vygotsky's Theory of Disontogenesis makes a unique contribution to the conceptual understanding of how an LD child's self-concept develops. Vygotsky (1993) suggests that there is a need to view disabilities as a socio-cultural phenomenon, where learning precedes development in the child, and the social environment is a source of learning, and as such, is a source for development. Vygotsky's (1993) theory emphasizes the importance of gaining an in-depth understanding of the size of the child's ZPD; how secondary disabilities develop in the LD child; and how to develop an adequate pedological diagnosis which leads to a plan on how to compensate and remediate a child with special needs using a positive differential approach.

The following chapter provides details on the research design, methods of analysis and ethical considerations of the research that was conducted. The research study was designed with the intention of exploring whether the LD children in the study internalize negative comments or labels from their social environment, and how this relates to their self-concept. A second intention of this research study was to investigate the use of self-concept assessments in the LD children in the study, and the value of the combining standardized self-concept scales with projective methods of assessing.

Chapter 3

3. Research Design, Methods of Analysis and Ethical Considerations

This research study was inspired by Vygotsky's (1993) emphasis on the LD child's social environment as a source of development, and more specifically the development of the child's self-concept. In addition, the research study was designed with the intention of applying Vygotsky's (1993) idea that an in-depth and holistic approach to understanding a child's development is needed, and as such, a purely standardized psychometric approach to assessment is not adequate.

3.1. Research Aims

1. To investigate pre-adolescent LD children's awareness of negative and positive labels or descriptions, the extent to which the children report to have been described by other people by that label, and the extent to which the children would describe themselves by that label.

Hypothesis 1(a): The LD children will report that they have been described by more of the negative labels than the positive labels.

Hypothesis 1(b): The children who report the highest number of negative labels will tend to have a lower standardized self-concept scale score and/or projective self-concept score than the children with the lowest number of negative labels.

2. To investigate the value of combining a standardized self-concept scale with projective methods of assessing self-concept for enhancing the understanding of the pre-adolescent LD child's self-concept.

Hypothesis 2 (a): The projected self-concept will account for different aspects than are accounted for by the standardized psychometric tests. The projected self-concept will measure informal feelings that the child has about herself and the standardized psychometric self-concept scale will measure the more formal, expressed attitude the child has about herself.

Hypothesis 2 (b): The composite self-concept description accounts for a broader spectrum of the pre-adolescent's experience than does either the projected self-concept or the standardized self-concept scale results. This will enable a more holistic view of the child's self-concept.

3. To investigate the importance that LD pre-adolescent children place on their five things they are good at, in comparison with the five things they are not good at. This will be compared with the reported importance the child thinks his teacher, parents and class mates will place on the five things they are good at, in comparison with the five things they are not good at.

Hypothesis 3(a): The LD children with lower self-concept scores will report that they think their teacher, parents and class mates place higher importance on the 5 things that they are not good at, and the LD children with higher self-concept scores will report the think their teacher, parents and class mates place higher importance on the 5 things that they are good at.

3.2. Research Design

3.2.1. Sampling

A Johannesburg suburban government school was selected on the basis that it attracts children from a variety of areas in Johannesburg (local suburbs as well as the inner city and townships) and thus it accommodates children from many different backgrounds. This school had good teaching resources, extra remedial classes and a social worker, psychologist and speech and language therapist available. This means that any academic difficulties displayed by children are more likely due to learning difficulties than from poor teaching resources.

The school was requested to identify 6 children (aged from 9 to 12) who are displaying significant difficulties in either Mathematics or Reading. Thus, this study made use of non-random, non-probability convenience sampling.

3.2.2. Age as a Factor in the Self-Concept of LD Children

Self-concept research has mostly been undertaken on children in middle school years (Pollard, 2001). Renick and Harter (1989) postulate that a child's self-concept takes form "at about the same time in the child's development that ... she becomes capable of reflecting on the self", and so "differences between self and other become salient" (p.631). This is believed to occur during middle childhood and early adolescence (Renick & Harter, 1989). Research into the self-concept of children has reported a positive bias in the self perceptions among children younger than 8 or 9 years, where they tend to over-rate their competence (Elbaum, 1999). This has been conceptualised as the result of cognitive immaturity (Pollard, 2001).

Research into the effect that age has on LD children suggests that from the age of 8 or 9 years, a LD child's self-concept tends to decline (Vaughn et al, 1992; Chapman, 1988b). Renick and Harter's (1989) study reported a steady decline in the academic self-concept of LD students in grade 3 through to grade 8. Vaughn et al (1992) suggest that, for this reason, LD children's self-concept should be assessed longitudinally.

In this research study, children were selected who fall into the pre-adolescent age range of 9 to 12 years, in order to study LD children as they are beginning to compare their academic performance with those of their peers, and are also beginning to develop secondary disabilities, as suggested by Vygotsky (1993).

3.2.3. Gender as a Factor in the Self-Concept of LD Children

In the past, research into LD has shown that the incidence of LD is more common among boys, where some researchers have stated that the male to female ratio is 4:1 (Durrant, Cunningham & Voelker, 1990). This can however be questioned, as it may be that the LD symptoms, and related behavioural difficulties may just be more noticeable in boys. Chapman (1988a) states that LD boys report lower academic self-concepts than LD girls, as well as lower academic achievement and more of an external locus of control. Chapman (1988a) suggests that it may be that LD boys have more adjustment and behavioural issues with regard to their learning difficulties due to the fact that boys tend to view the classroom environment as being "female" (which is reinforced by the

predominance of female teachers in the lower grades) and may have greater difficulty maintaining a positive self-concept when coping with a failure in a "female" environment (p. 362). It has also been suggested that LD boys receive more critical feedback than LD girls do (Dweck et al, 1978, in Chapman, 1988a). Gans, Kenny & Ghany (2003) reported no differences between LD girls and boys in terms of general self-concept, but did find that girls obtained higher scores on the behaviour subscale. This could be a result of the expectation that girls should be better behaved than boys (Gans, Kenny & Ghany, 2003), and this could support the idea that LD boys may stand out more in the classroom because of behavioural problems (Chapman, 1988a).

In this research study, an equal number of boys and girls were referred to the researcher by the school, based on the criteria that they possibly have learning difficulties. This is based on convenience sampling, and so has no generalisability with regard to the incidence of LD in terms of gender.

3.2.4. Instruments

In order to assess the children's self-concept in a holistic way, both standardised psychometric tests and projective tests have been utilised in this study, as well observation of and interviews with the children. The administration and scoring of the projective tests are discussed in detail below, as projective tests are not standardised, and so there is variation with regard to how different researchers and clinicians administer and score projective tests. In addition, this study made use of an IQ test, as well as two reading tests and two mathematics tests, The IQ and scholastic tests were used in order to ascertain that the children fit the research criteria that that they exhibit IQ scores above 85 points, and that they have significant deficits in their reading or mathematics scores. This section on instruments concludes with a discussion of the two questionnaires that were designed for this research project, which detail the children's perceptions of positive and negative labelling from others as well as the importance that others place on the things they are good at and the things they are not good at.

3.2.5. Projective Testing

Projective tests are defined by their use of a relatively unstructured task, which allows for an almost unlimited variety of possible responses. The test stimuli is usually vague or ambiguous (Anastasi & Urbina, 1997; Murphy & Davidshofer, 2001). The underlying hypothesis is that the way the individual perceives and interprets the stimuli will reflect fundamental aspects of her psychological functioning, thought processes, needs, anxieties and conflicts (Anastasi & Urbina, 1997). Thus, projective techniques are considered to be particularly effective in revealing "covert, latent, or unconscious aspects of personality" (Anastasi & Urbina, 1997, p. 411). Projective tests generally fall into two categories: those that involve verbal responses and those that require drawings as a response from the child.

3.2.6. Projective Drawings

The use of drawing to assess children's feelings and perceptions has an extensive history dating from the late nineteenth century and continues to be popular today (Knoff & Prout, 1985). This research study has made use of the Kinetic Family Drawing, the Draw-A-Person Test and the Bender Test as projective drawing assessment techniques.

3.2.6.1. Kinetic Family Drawing (KFD)

It was suggested in 1951 that children should be asked to draw pictures of their family as part of a personality assessment (Hulse, in Knoff & Prout, 1985). These drawings were considered "stiff" or "motionless" as children frequently drew very static pictures (Knoff & Prout, 1985). Burns and Kaufman (1970, in Knoff & Prout, 1985) saw the need for a more dynamic picture which depicted family interactions, and so developed the "Kinetic Family Drawing" (KFD) technique. This increased the diagnostic value of the drawings both qualitatively and quantitatively in terms of the increase of detail and dynamics depicted in the drawings.

The KFD is administered by the provision of a piece of paper and a pencil to the child. The child is told the following instructions: "Draw a picture of everyone in your family, including you, doing something. Try to draw whole people and not cartoons or stick

people. Remember, make everyone doing something – some kind of action" (Knoff & Prout, 1985, p. 4).

The KFD makes use of a "personality theme" as it's method of analysis where a reaction, behaviour, or perception that consistently and significantly appearing in the child's KFD system analysis, as well as across all the other assessment data is noted (Knoff & Prout, 1985). When analysing the child's KFD it is "helpful to note such details as the order in which the figures are drawn on the page, the number and places of erasures, drawing style and motor dexterity, and other more global behavioural observations (e.g. impulsivity, planning strategy, facial expressions, motivation)" (Knoff & Prout, 1985, p. 4). Knoff and Prout (1985) recommend five diagnostic areas for the interpretation of KFD: actions of and between figures; figure characteristics; position, distance and barriers; style; and symbols.

When analysing the KFD, researchers and clinicians generally look for symbols in the pictures. The symbols that are suggested as indicators of low self-esteem in children's drawings include: playing ball with oneself, a theme of dirt, high activity level in picture (e.g. running, throwing, hitting), poor integration of parts of the figure, head 'cut off' or occluded by another object, oversized or large head, omission of face or arms, face turned towards the page, self is drawn relatively smaller, omission of self, less than 5 fingers in self, hidden hands (in pockets or behind back), facial scars on self, drawing of a cartoon figure (or puppet, robot, clown or monster), very large ears, drawing of self significantly apart from others, broken or very light line drawing, mask, uniform clothes (e.g. military uniform), dishevelled or untidy figure, very dark overworked drawings, excessive attention to detail, inadequate to no detail, excessive erasure, rotated figures, use of a cross or x symbol, compartmentalization of self (e.g. separation using a line or box), drawing near the margin, more than one line underlining the top or bottom of the page, drawing of self on the other side of the page, drawing of rain, clouds or snow, strong winds, people floating in water (Knoff & Prout, 1985; Gilford, 1978; Koppitz, 1968).

In this research report these indicators have been used as a checklist in order to obtain a total score of the number of indicators of low self-esteem and emotional difficulties for each of the 5 children assessed.

3.2.6.2. Human Figure Drawings - The Goodenough-Harris Drawing Test (The Draw-A-Person test) (DAP)

Drawings of human figures have been used for many decades as an evaluation of personality. Machover (1949, in Anastasi & Urbina, 1997) developed the Machover Draw-A-Person Test, which was scored qualitatively with rather sweeping generalizations based on single features of the drawing. More empirically based tests were later developed, including the Goodenough-Harris Drawing Test (The Draw-A-Person test) (DAP), which involves a list of 'emotional indicators' which are used to distinguish between drawings of children with and without emotional difficulties (Anastasi & Urbina, 1997). Researchers of projective drawings suggest that the aggregate features of the drawing, such as the total number of emotional indicators, is useful in obtaining a general idea of the emotional wellbeing of the person, but have warned against the use of single indicators for diagnostic purposes (Anastasi & Urbina, 1997).

The DAP is utilised with children between the ages of five and sixteen years old (Harris, 1963, in Foxcraft & Roodt, 2001) and grew out of the work of Machover (1949, in Murphy & Davidshofer, 2001). South African research has shown that the DAP is suitable for black children, where the maximum suitable age would be 10 years old (Richter, Griesel & Wortley, 1989, in Jooste, 1997b). This type of test was initially developed to assess children's intelligence, but its use has been extended to assess personality and diagnose psychopathology, through the analysis of what the examinees project of themselves into the drawing (Murphy & Davidshofer, 2001). The effect of art training in school on the psychometric properties of the DAP has been found to be negligible (Jooste, 1997b). Scoring and interpretation of the DAP is considered to be a complex subjective task, where such things as the size and placement of the drawing, the action depicted, shading and erasures, as well as the attention given to particular body parts, is analysed (Murphy & Davidshofer, 2001).

Rosenbaum (1989) administered and analysed the DAP as a measure of self-concept, using the Draw-A-Person Self-Concept Scale (DAP S-C S) which was developed and validated by Bodwin and Bruck (1960, in Rosenbaum, 1989). Rosenbaum's choice of this method of analysing the self-concept was based on the fact that some research has

found verbal self-report techniques to be an "unreliable measure of self-concept in black disadvantaged children" (Rosenbaum, 1989, p. 22). Further, it has also been shown that the DAP S-C S has been used successfully in two previous studies with black disadvantaged children (Gordon, 1983; Skuy & Westaway, 1985; in Rosenbaum, 1989).

The DAP S-C S was designed to measure self-concept in terms of the child's self-confidence, freedom to express appropriate feelings, liking for oneself, and satisfaction with her attainments (Rosenbaum, 1989). Rosenbaum (1989) states that "Bodwin and Bruck found that drawings judged for certain characteristics correlated significantly with a psychiatric interview" (p. 22). Some of characteristics scored by Bodwin and Bruck include reinforcement, shading, incompleteness, erasures, sketchy lines, transparencies, immaturity and opposite sex identification. The child's drawing is scored according to the presence of these characteristics, which are rated on a five-point scale which ranges from markedly present (scores 1) to markedly absent (scores 5) (Rosenbaum, 1989).

In addition to Bodwin and Bruck's characteristics, Rosenbaum (1989) added four new items to her analysis of DAP drawings, bringing the total characteristics that can be rated up to 17 (See Appendix A). Rosenbaum (1989) included the size of drawings, use of fantasy figures (such as clowns, monsters, witches etc.), the drawing of the person with a profile view, and the placement of the person on the page. Rosenbaum (1989) provides a rationale for each of these 4 added characteristics based on her literature review on emotional indicators of the DAP test, and her suggestions for added scoring characteristics coincides with the literature review conducted for this research paper (Knoff & Prout, 1985; Gilford, 1978; Koppitz, 1968;Machover, 1949, in Murphy & Davidshofer, 2001).

The DAP analyses in this research report utilised Rosenbaum's (1989) suggested rating system. The only difference is that for this research the scoring has been reversed so that a score of 5 indicates 'markedly present' and a score of 1 indicates 'markedly absent'. The scoring system for the DAP was adapted so that it would make more logical sense when compared to the scores of the other tests of self-concept where a high score indicates a higher self-concept and fewer emotional difficulties.

3.2.6.3. The Bender Visual-Motor Gestalt Test (Bender)

The Bender Visual-Motor Gestalt Test (Bender) is a simple measure that is generally utilised for the diagnosis of perceptual disorders and organic brain damage, as well as a diagnosis of psychopathology or maladjustment (Murphy & Davidshofer, 2001). It is a picture copying task where the individual is required to copy nine geometric figures (Bender, 1938). The types of errors and distortions are analysed, as well as the process of drawing and the behaviour of the individual. Research has suggested that the Bender may be useful in diagnosing depression, anxiety states, and a variety of adjustment and emotional problems and learning difficulties (Tolor & Brannigan, 1980, in Murphy & Davidshofer, 2001). Bender (1938) suggested that there are some indicators that can be found in the child's drawings which suggest emotional difficulties:

- Drawing of the patterns in arbitrary or illogical order sequence
- Wavy lines in figure 1 & 2 – with abrupt changes in the direction of the line of dots
- Dashes are substituted for circles in figure 2
- Increasing size of the dots and circles in figure 1, 2, & 3
- Larger size of the drawing than the stimulus card (more than 1/3 larger in all directions)
- Small size of drawings (more than half the size of the stimulus card)
- Very fine pencil lines
- Overwork or reinforcement of lines with heavy impulsive strokes
- Second attempt at drawing pictures (First attempt is abandoned or crossed out)
- Expansion (use of 2 more sheets of paper for the 9 drawings)

These indicators that Bender (1938) suggested are signs of emotional difficulties was utilised in this research study as a checklist in order to obtain a total score for each of the 5 children assessed in terms of indicators of emotional difficulties present in the Bender test.

3.2.7. Verbal and Written Projective Tests

3.2.7.1. Thematic Apperceptions Test (TAT/CAT)

The first version of a Thematic Apperceptions Test (TAT) was developed by Murray in 1938 as an alternative to Rorschach's Ink Blot Test (Murphy & Davidshofer, 2001). The TAT consists of a more structured stimuli in which a variety of pictures is presented to the individual and they are required to make up a story to fit each picture, telling what led up to the event shown in the picture, describing what is happening at the moment, and what the characters are thinking and feeling, as well as what the outcome will be (Anastasi & Urbina, 1997). Murray et al (1947, in Anastasi and Urbina, 1997) suggest that the responses be analysed by first determining who the 'hero' in the story is (the main character that the individual has presumably identified with). The content is analysed in terms of 'needs' (such as the need for achievement, affiliation or aggression) as well the 'press' (the environmental forces that assist or hinder the need). MacAdams (1994, in Foxcraft & Roodt, 2001) suggests that the TAT is particularly useful as an indicator of motives, and suggests that three motives (out of the 20 motives listed by Murray) are usually most evident, namely the need for intimacy, the need for achievement and the need for power.

Although normative data has been compiled as to the most frequent responses elicited by the various cards, the wide diversity in administration and scoring procedures has made it very difficult to investigate the psychometric properties of the TAT (Anastasi & Urbina, 1997; Murphy & Davidshofer, 2001). Nevertheless, the value of thematic apperception techniques has been displayed in investigations into the clinical utility in assessing psychopathology, the use of defense mechanisms, and for other novel uses, such as problem solving skills (Anastasi & Urbina, 1997).

In my research I made use of an adaptation of the TAT which has been developed for use with children – the Children's Apperceptions Test (CAT). The CAT was specially designed for use between the ages of 3 and 10 years old (Bellak, 1993, in Anastasi & Urbina, 1997). The CAT cards make use of pictures of animals instead of people on the assumption that young children project easier to pictures of animals, which are portrayed in typical human situations (similar to children's books and cartoons). Although most sets of apperception cards have between 20 and 40 cards, normally the examiner administers about 10 cards to an individual, by selecting the cards most appropriate to the topic under investigation (Murphy & Davidshofer, 2001). In my research I made use

of 7 CAT cards, which were selected on the basis that they possibly have some relation to anxiety, performance or self-esteem.

In Analysing CAT stories, the following indicators of low self-esteem and emotional difficulties have been suggested by various authors (Bellak, 1971; Murray, 1971; Rapaport, 1975; Henry, 1967):

- No action takes place in the story, the characters are very passive
- Violent action or violent objects in the story (such as blood, knives etc.)
- Negative affect words or actions (e.g. unhappy, crying, frustrated etc.)
- Problems are not resolved, poor coping skills are displayed by the characters
- Poor relationships or discord amongst characters
- Undoing or backtracking in the plot / ambivalence in telling the story
- The main character experiences a lack of control /f ear / anxiety
- A theme of failure / of not being good enough / self critical
- Performance anxiety in telling a story / refusal to tell a story

When scoring the children's TAT stories, the above indicators were utilised in this research report as a checklist and the children were allocated a score of 1 every time one of these indicators were present in the 7 stories they told. The scores were then totalled in order to obtain a total score for indicators of emotional difficulties that were present in the children's TAT stories.

3.2.7.2. Rotter Incomplete Sentences Blank (RISB)

Sentence Completion Tests require the individual to complete sentences of which only the stem has been given, such as 'I get upset when ...' (Foxcraft & Roodt, 2001). The Rotter Incomplete Sentences Blank (RISB) is a 40 item semi-structured projective test, which means that the individual may be more aware of the purpose of the test, than is the case with more subtle projective methods (Murphy & Davidshofer, 2001). The RISB is used primarily to screen for emotional maladjustment, however "many clinicians go beyond this score, and examine the content of the responses for particular insights into major areas of difficulty for the individual" (Murphy & Davidshofer, 2001 p. 399).

In this research report, the children in this study completed the 40 sentences and then the task was scored according to the number of negative words or ideas and the number of positive words or ideas that were present in the sentences.

3.2.8. Advantages of Projective Testing

A projective task is usually interesting for the subject and can assist in developing rapport between clinician and subject. It can divert the individual's attention from herself and so reduce embarrassment and defensiveness. It is usually a non-threatening task as there is no right or wrong answer (Anastasi & Urbina, 1997). In general, projective testing is less susceptible to faking than self-report measures are, as the purpose of the projective test is usually disguised (Anastasi & Urbina, 1997). Generally, the individual soon becomes absorbed in the task, and is less likely to use defenses or to try giving socially desirable responses. However, studies have been conducted where respondents were asked to alter their responses to create a positive or negative impression, and the respondents were able to successfully "fake good" and "fake bad" (Masling 1960, in Anastasi & Urbina, 1997). Anastasi and Urbina (1997) suggest that a skilled examiner is alert to signs of faking and inconsistencies with other data.

3.2.9. Limitations of Projective Testing

Most projective tests are not well standardized in terms of administration and scoring, and may not be used in a standardized way in clinical practice. "There is evidence that even subtle differences in the phrasing of verbal instructions and in examiner-examinee relationships can appreciably alter performance on these tests" (Anastasi & Urbina, 1997, p. 434). The lack of objectivity in scoring means that interpretation relies heavily on the skill and clinical experience of the examiner (Anastasi & Urbina, 1997).

Projective tests also generally have inadequate normative data, which can lead to misleading interpretations and misdiagnoses (Anastasi & Urbina, 1997). Projective tests can have questionable inter-scorer reliability as well as limited internal consistency (for e.g. the different TAT cards are not comparable and cannot be used to find split-half reliability). Retest reliability is very difficult to ascertain, as with long intervals genuine

personality changes have taken place, and with short intervals the respondents tend to just recall their original responses (Anastasi & Urbina, 1997).

3.2.10. Intelligence Testing: The Senior South African Intelligence Scale – Revised (SSAIS-R)

The SSAIS-R comprises a verbal scale (with 5 subtests of verbal ability) and a non-verbal scale (with 4 performance based subtests) and a total score on all subtests which is assumed to represent an underlying general factor of intelligence (consistent with Spearman's g factor theory of intelligence) (Foxcraft & Roodt, 2001). This test is administered individually and the administration and scoring is standardized and based on normative data. However, as the test is administered to individuals, non-cognitive or behavioural observations can also be noted. The SSAIS-R has been standardized for English and Afrikaans South African pupils of all nationalities between the age of 7 years 0 months and 16 years 11 months. The normative sample consisted of 2000 pupils from each of the 3 education departments in existence in 1985 (van Eeden, 1997). Raw scores for each subtest can be converted to standardized scores (ranging from 0 to 20) and can be used to calculate a deviation IQ score. The reliability co-efficient for the full scale scores over all the age groups range from 0.93 to 0.95; content validity is established; and the construct and criterion-related (concurrent and predictive) is adequate (van Eeden, 1997).

3.2.11. Scholastic / Academic Tests

Academic proficiency tests focus on a specific field of study or subject (such as reading) and are usually also diagnostic, in that they measure performance in specific skills or subsections of the subject (Foxcraft & Roodt, 2001).

3.2.11.1. Burt Word Reading Test (Burt)

The Burt Word Reading Test is a word recognition test which has been normed for New Zealand children (Pisecco et al, 2001). The Burt "is considered an extremely consistent measure of reading, with test-retest reliability coefficients that range from .95 to .99 and internal consistency coefficients ranging from .96 to .97" (Pisecco et al, 2001, p. 453). The child is asked to read a list of words which increases approximately with difficulty until 10 words are read incorrectly in succession. The raw score comprises the total of the number of words that were read correctly, and can be converted into a reading age (based on a standardized sample of New Zealand children).

3.2.11.2. Neale Analysis of Reading Ability - Revised (Neale)

The Neale Analysis of Reading Ability test has been used in a substantial number of studies, including clinical and experimental studies (Neale, 1988). The Neale consists of a set of graded passages for testing the child's rate, accuracy and comprehension of oral reading. Raw scores can be converted into percentile ranks, stanines and reading ages for Accuracy, Comprehension and Rate of reading (Neale, 1988). The Neale was revised in 1988 with a British standardization sample of 400 children from each of the 6 age groups, aged from 6 to 12. The Neale test showed high stability (test-retest) reliability and high internal consistency. The Neale test manual also reports adequate content validity, criterion-related validity (as correlated with other reading scales and the verbal subtest of the Wechsler Intelligence Scale for Children - Revised), predictive validity and construct validity (Neale, 1988). The Neale is considered a good diagnostic test in that a growing body of research has shown that the test can adequately differentiate between different groups of children (such as those with reading problems or receiving different educational methods) (Neale, 1988).

3.2.11.3. Vassi Mathematics Proficiency Test (Vassi)

A raw score on the grade specific level Vassi Mathematics Proficiency test is calculated, and then converted to a stanine and a percentile score. Norms were established by administrating the test to 203 grade 3 and 533 grade 4 South African pupils. For the

grade 3 and 4 level tests, the reliability are 0.87 and 0.80; the test-retest reliability and prediction validity is significant at the 0.01 % level; and the content validity was deemed adequate by the teachers involved in the study and the Free State Education Department (Vassiliou, 2003). Thus, the psychometric properties of the Vassi test can be considered adequate for testing South African children.

3.2.11.4. TED One-Minute Maths Test

The One-Minute Maths Test was designed by the Transvaal Education Department for use with children aged 6 to 14. The child is required to complete a column of addition, subtraction, multiplication and division sums, each with the time limit of 1 minute. The number of sums the child can complete correctly is allocated a mathematics test age (e.g. 11 addition sums correctly completed in 1 minute is associated with a mathematics age score of 7 years and 6 months). I have not been able to find information with regard to the development and standardization of this test; however, in my experience of testing children, I have found this to be a useful test which corresponds well to the scores obtained on the psychometrically sound Vassi Mathematics Proficiency Test.

3.2.12. Psychometric Self-Concept Scale: Piers-Harris Children's Self-Concept Scale (PHCSCS-2)

The Piers-Harris Children's Self-Concept Scale (PHCSCS-2) is a 60 item forced choice (yes-no) self report measure to assess a student's conscious self perceptions and self attitudes, subtitled "The Way I Feel About Myself" (Piers & Herzburg, 2005). The PHCSCS-2 is appropriate for use in any research, educational or clinical setting that requires an efficient quantitative analysis of children's reported self-concept (Piers and Herzburg, 2005). "The PHCSCS's adequacy and usefulness as a research instrument has been widely documented" (Gans, Kenny & Ghany, 2003, p. 289) and "overall, the PHCSCS has received heavy clinical use and has been recommended over other measures of self-concept" (Piers, 1994, in Gans, Kenny & Ghany, 2003, p. 291).

The PHCSCS-2 scale is appropriate for children aged 7 to 18, with at least a grade 2 reading level (Piers & Herzburg, 2005). As some of the children in this research study have difficulty with reading, the questions were read aloud to them by the assessor.

The PHCSCS-2 provides individual information on 6 domain scales:

- Behaviour Adjustment (BEH)
- Intellectual and School Status (INT)
- Physical Appearance and Attributes (PHY)
- Freedom from Anxiety (FRE)
- Popularity (POP)
- Happiness and Satisfaction (HAP)

(Piers & Herzburg, 2005, p. 4)

"This instrument uses children's conscious self-perceptions gained through self-report, rather than attempting to conjecture how they feel about themselves from their observable actions or the attributions of others" (Gans, Kenny & Ghany, 2003, p. 289). Although Piers and Herzburg (2005) consider this a useful instrument, they do suggest that "it cannot by itself provide a comprehensive evaluation of a child's self-concept" (p. 4). It is recommended that the information provided by the PHCSCS-2 is integrated with other sources of data, and that an evaluation of a child's self-concept requires clinical sensitivity and familiarity with the applicable research literature (Piers & Herzburg, 2005).

The raw scores obtained for each of the domains of the PHCSCS-2 is converted to a normalized T-score (with a mean of 50 and a standard deviation of 10). A high T score is consider to be above 60, and a low T score is considered to be below 39 (Piers & Herzberg, 2005). The PHCSCS-2 was standardized on a sample of 1387 United States boys and girls in the age groups of 7 to 18 across an ethnic group distribution that is similar to U.S. Census figures. Piers and Herzberg (2005) suggest that "this means that the norm-referenced standard scores ... can be used with children and adolescents from diverse backgrounds" (p. 20), however this still has limited generalisability to South African children.

When scoring the PHCSCS-2 it is important to take into account some validity issues. Piers and Herzberg (2005) suggest that 4 kinds of validity issues need to be considered:

- The child may try to distort her answers, where positive exaggeration (faking good) and negative exaggeration (faking bad) could take place.

- The child may have a tendency towards a negative or positive response bias – The PHCSCS-2 has a response-bias (RES) index which can be used to assess yes- or no- saying biases.
- The child may randomly respond to the questions, and this would be assessed using the inconsistent responding (INC) index.
- A moderator variable could cause systematic group differences. The PHCSCS-2 has been analysed for the effects of several potential moderator variables (namely age, sex, ethnicity, socioeconomic status, and U.S. geographic region), however other moderator variables may still play a role.

3.2.13. Semi-Structured Interview Questionnaire

3.2.13.1. The Role of Labelling in the Self-Concept of LD Children

Kelly and Norwich (2004) found that most of the LD children in their research study were aware of their learning difficulties and felt mostly negative about their difficulties. The children in this study reported that other people used labels to describe them, such as "needs help", "learning difficulty" as well as "stupid", "spastic" and "slow" etc. (p. 416). The children reported mostly negative feelings towards these labels and reported that although they tended not to apply the labels to themselves, they are sensitive to the negative connotations. Kelly and Norwich (2004) highlight the importance of looking into mixed positive and negative self-perceptions and the subject's own idiosyncratic descriptions of themselves when studying self-concept, which may not be tapped in a traditional self-concept scale, "based on theoretical assumptions that do not recognise this contrary and mixed aspect of self-perceptions" (p. 424). The authors recommend a "semi-structured open-question interview approach" which enables an informal style of questioning and the wide-ranging exploration of ideas (p. 424).

This research study has expanded on Kelly and Norwich's (2004) research into whether children have experienced labelling, and whether they report that they have internalized the label. The list of labels has been expanded to include a mix of positive and negative labels with regard to academic ability. An interview questionnaire was designed for this research study which assessed the child's knowledge of 16 labels relating to academic abilities (where 8 labels had positive connotations and 8 labels had negative

connotations). The child was asked to report on which of these labels she had heard other people use to describe her, and which of these labels she would use to describe herself. The questionnaire is listed under Appendix B in this research report.

3.2.13.2. The Role of Resilience in Protecting LD Children from Developing Low Self-Concept

Singer (2005) points out that it is fortunate that 25% of LD children do not suffer from psychosocial problems, as "they develop patterns of action to avoid being bullied and to protect their self-esteem" (p. 412). It is essential to find out which protective factors and sources of support are helpful to the LD child's self-concept. Studies of the resilience of children with LD suggest several possible protective factors that reduce the negative consequences of learning difficulties on children (Singer, 2005). Singer's (2005) overview of studies of the resilience of children with LD suggests the following protective factors that either reduce the negative consequences or increase the chances of a favourable outcome for LD children:

- Temperamental and personal characteristics that help the person to make good use of her abilities and sources of support in the environment
- Emotional and academic support from parents and teachers
- The child's understanding of her LD

One of the sources of resilience in LD children in inclusive educational settings is the child's ability to recruit teacher attention in a positive social way. Alber, Heward and Hippler (1999) found that the teaching of these attention recruiting skills to LD children (who often have limited social skills) increased the rate of teacher praise, the rate of instructional feedback from the teacher and the accuracy with which the students completed their workbook assignments. The increase in teacher praise and instructional feedback could impact on LD children's self-concept, as the child's perception of the extent to which teachers display a willingness to help her understand and learn is related to a higher general self-concept (Ireson & Hallam, 2005).

In a study assessing patterns of behaviour in children who have been diagnosed as dyslexic and having significant reading and spelling difficulties, Singer (2005) found that

85% of the children reported being teased for being dyslexic and 25% reported that they were frequently teased and bullied. Singer (2005) found that the children used 3 different behavioural strategies for dealing with their LD:

- Some children did not make any attempt to influence the children who teased them, but rather relied on actions such as ignoring peers, hiding their emotions, hiding their academic problem, working extra hard and turning to the teacher for support.
- Some children defended themselves by expressing anger and by fighting back.
- Other children tried to explain their dyslexia and reading difficulties to their peers (always in combination with some of the actions listed in point 1).

Singer (2005) reported that even the dyslexic children who reported that they were rarely teased were "preoccupied with the avoidance of being teased or laughed at" (p. 421). In terms of protective factors, Singer's (2005) study suggests the importance of parents as a resource of support, however teachers were more likely to be seen as a risk factor by the children "because they can make their dyslexia public" (p. 422). Thus, the children in this study used very different strategies for protecting or restoring their self-esteem, and some of the strategies (such as hiding their academic problems) can take up a lot of the child's energy and can lead to psychosocial problems (Singer, 2005).

An interesting finding in Singer's (2005) study is that a group of children reported that their reading problems had a positive effect of their self-esteem, "these children are proud of every little step they take forward; they have decided to 'beat' dyslexia as far as possible" (p. 423). Singer (2005) states that further studies involving protective factors and risk factors are important for developing a supportive school policy and environment for LD children.

As the debate continues in South Africa among educators and parents with regard to whether LD children should be educated in a mainstream inclusive educational setting or whether segregated 'special' schools are the best placement (Engelbrecht et al, 2005), it is interesting to note the findings of the studies involving the self-concepts of LD students in different educational placements. There is some variation with findings, where some studies suggest that inclusive education is associated with higher self-concepts (Pollard, 2001), and other studies suggest that segregated education is more

beneficial for LD students' self-concepts (Chapman, 1988; Liu, Wang & Parkins, 2005). Chapman (1988) suggests that placement does not make much of a difference, however "receiving some remedial help is associated with higher general self-concepts for LD students" (p. 360).

In an attempt to address the research findings that some LD children are able to maintain an adequate general self-concept while showing a reduced academic self-concept, Chapman (1988a) suggests that "many LD students are able to maintain a sense of self-worth in alternative non-academic activities" (363). Thus, satisfaction and feelings of accomplishment in sport, music or hobbies may help compensate for feelings of academic failure (Chapman, 1988a). Other researchers have found that LD children who are able to maintain positive self-perceptions report perceptions of more social support and favourable feedback from others (especially teachers, parents, friends and peers) as well as the child's perceived competence in domains other than academic work (Gans, Kenny & Ghany, 2003). Although it should be noted that some research findings suggest that a discrepancy between the children's perceived competence and the teacher's reports of competence, suggesting that the child may have a falsely elevated sense of competence (Gans, Kenny & Ghany, 2003).

Possible factors that improve self-concept resilience in LD children have been explored in this research study in the clinical interview with a parent as well the child, through the use of a semi-structured interview questionnaire. The questionnaire was designed to assess 5 things that the child thinks she is good at, and 5 things that the child thinks she is not good at. The relative importance that the child places on the things she is good at and the things she is not good at is rated by the child. This questionnaire is listed under Appendix C in this research report. The child was also asked during the clinical interview about whether she experiences teasing at school, how she copes with teasing at school, and whether her teacher or parents are a source of assistance with the problem of teasing.

3.3. Research Methodology

3.3.1. Methods of Data Collection

1. An IQ test was conducted on the five children who remained in the sample to ascertain that they are suitable subjects for this study. The requirement for this study is that the children have a global IQ score above 85 (as measured in the Senior South African Intelligence Scale - Revised).

2. The children were assessed on Mathematics Tests and Reading Tests to ascertain whether there is a discrepancy of at least 1 year or 1 standard deviation between their achieved score and what is expected for the child's age, thus indicating a learning difficulty. This study made use of the Burt Word Reading test (Burt), The Neale Analysis of Reading Ability test (Neale), The TED One-Minute Mathematics Test and the Vassi Mathematics Proficiency test (Vassi).

3. The formal psychometric test of self-concept that was used is the Piers-Harris Self-Concept Scale – 2nd Edition (PHCSCS - 2). The research also made use of less formal, more projective tests of self-concept; namely the Draw-A-Person Test (DAP), Rotter Incomplete Sentences Blank (RISB), Thematic Apperceptions Test (TAT), Kinetic Family Drawing test (KFD) and the Bender for Visual Motor Integration task (Bender).

4. A structured interview questionnaire was designed and administered by the researcher to investigate the children's reported perceptions about the importance that their parents, teachers, and peers place on the areas that the child is good at, and the areas that the child is not good at (See Appendix C).

5. A structured interview questionnaire was designed and administered by the researcher to assess the children's knowledge of different positive and negative labels that can be attributed to academic ability (See Appendix B). The child reported whether she had ever been described by the term or label before, and whether she would describe herself with that term or label.

3.3.2. Methods of Analysis

In order to investigate hypothesis 1(a), the number of positive negative labels that the child reports to know and to have experienced others use to describe her was totalled. The number of negative labels was compared to the number of positive labels that the child reports others have used to described her (See Table 19, 20 & 21).

In order to investigate hypothesis 1(b), the total number of negative labels that the child reports others have used to describe her was compared with:

a) The child's obtained Total and Intellectual and School Status self-concept scale T-scores as obtained on the Piers-Harris Self-Concept Scale – 2nd Edition (PHCSCS-2) (See Table 22 – 24 & Figure 2 & 3).
b) The number of negative self-concept indicators on the projective tests, namely the Draw-A-Person Test (DAP), Kinetic Family Drawing (KFD), Sentence Completion Task (RISB), Bender Visual-Motor Gestalt test (Bender) and the Thematic Apperceptions Test (CAT) (See Table 22 – 24 & Figure 4).

Although the calculation of a correlation between the number of negative labels and the various scores listed above was not possible due to the small sample size and the non-random sampling method used, scattergram graphs have been plotted in order to visualise the comparison between the number of negative labels and the various self-concept scores listed above (See Figures 1 – 4).

In order to investigate hypothesis 2(a) and 2(b), a qualitative analysis and discussion of the different aspects of the self-concept exhibited in the formal PHCSCS-2 as compared to the informal feelings that the child has about herself as indicated in the DAP, RISB, KFD, Bender and CAT was included.

In order to investigate hypothesis 3(a), a comparison was made between the importance ratings the child perceives her parents, teacher and peers apply to the 5 things she is good at and the 5 things she is not good at. A comparison has been made between the children's self-concept scores and the perceived ratings that the

child has reported in order to ascertain if the children with the lower self-concept scores attribute higher importance to the things they are not good at (See Tables 25 – 30 and Figures 5 – 8).

In addition, the children's verbal, non-verbal and total IQ scores (as calculated on the SSAIS-R) was discussed in terms of the qualifying minimum criteria for this study of an IQ score of above 85 points (See Table 1). The additional qualifying criteria of obtaining a mathematics or reading score that is at least 1 standard deviation or 1 year below what is expected for the child's age was discussed (See Tables 2 – 5). The mathematics and reading scores of the children in this study was also discussed in terms of gender (See Tables 6 – 9). A comparison was also made between the various self-concept scores (as obtained using the PHCSCS-2) for each child. The mean of the children's scores for each of the domain scales of the PHCSCS-2 has been calculated (See Tables 10 – 18 and Figure 1).

3.4. Ethical Considerations

An application to conduct the proposed research was made to the Ethics Committee of the School of Education, University of the Witwatersrand and the Human Research Ethics Committee of the University of the Witwatersrand. Approval of this research project was granted from both of these committees (protocol number 2006ECE35).

A letter was sent to the selected primary school explaining the purpose of the research study and requesting permission to conduct research on 6 of the children in the school. The relevant staff members at the school were asked to assist the researcher in identifying subjects beforehand so that they can be invited to participate in the research. However, the results of the children's assessments were only shared with the school with the written consent of the parents or guardians. (For a copy of the letter that was sent to the school see Appendix D).

As all the participants in the study were below the age of 13, informed consent was obtained from parents or guardians. A letter was given to the parents at the beginning of the initial interview, which stated the following:

- The researcher's name, contact details and purpose of the research.
- The interview with the parents and the assessment of the child is confidential, and anonymity is assured in the research report. The results of the assessment will be shared with the parents/guardians in the form of a feedback meeting and a written report (and only with the school, if written consent is given by the parents for the assessment report to be given to the school). All documentation will be stored securely.
- The potential benefit of the research is that the results of the assessment may assist the parents (and school) to plan educational and other interventions that may be necessary. I do not anticipate any risks with the research.
- Participation is voluntary, and the parents have the right to withdraw from the study. The parents have the right not to answer any questions that they do not wish to answer.

The parents/guardians were asked to sign the consent form attached in two places: Firstly, to give consent for their child to be involved in the research study, and secondly to give consent to give a copy of the assessment report to the school. It was stated that providing a copy of the report to the school is voluntary, as it was not necessary for the child to be included in the research study. (For a copy of the consent form that was signed by the parents, see Appendix E).

The child was provided with an informed assent form, explaining that participation is voluntary and that the information obtained will only be shared with the parents (and possibly with the school with the permission of the parents). (For a copy of the assent form that was signed by the subjects, see Appendix F).

Confidentiality was guaranteed through the use of a coded reference number which was used on all written documentation and notes for the research report. Only the researcher conducted interviews and assessed children and wrote the reports. All written documentation and notes were kept securely at the researcher's office. The school will remain anonymous and is not identified in this research report.