

The Effect of Literacy Training
on the Self-Concept
of Moderately Mentally Handicapped Adults

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ABSTRACT

In this single group, pretest/posttest design study the literacy level and self-concept of nine moderately mentally handicapped adults was assessed. The participants in the study were involved in reading lessons using the Ball-Stick-Bird reading system, a brain-based program. No significant differences were found in either literacy level or reading level after intervention. However, there were changes in reading behaviour. These changes occurred in the subskills of directionality, letter-sound correspondence, word-reading, and use of reading materials.

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CHAPTER ONE

Introduction

This is a study of the effect of literacy training on the self-concept of moderately mentally handicapped adults. Currently there is a focus on literacy training for those adults who have been unable to learn to read, be it for emotional, educational, or intellectual reasons. Many texts, handbooks, and articles have been written which seek to give educators the proper tools and milieu for teaching the art of reading to these adults (Bachor & Crealock, 1986; Cantor, 1992; Farrell & Elkins, 1995; Fuller, 1990; Giddings, 1986; Hatt & Nichols, 1992; McCormick, 1994; Purkey & Novak, 1984; Scully & Johnston, 1991; Soifer, Irwin, Crumrine, Honzaki, Simmons, & Young, 1990). Literature is voluminous on techniques that have been tried to teach reading skills to disabled readers and their degrees of success (Barudin & Hourcade, 1990; Conners, 1992; Fuller, Shuman, Schmell, Lutkus, & Noyes, 1975; Gast, Ault, Wolery, Doyle, & Belanger, 1988; Gottardo & Rubin, 1991; Hoogeveen, Smeets, & van der Houven, 1987; House, Hanley, & Magid, 1980; Sensenig, Mazeika & Topf, 1989; Walsh & Lamberts, 1979; Wong, 1991). Self-concept is thought to be an important factor in personality development and academic success (Benson & Ivins, 1992; Gruen, Ottinger, & Ollendick, 1974; Kearns, 1992; Leahn, Balla & Zigler, 1982; Stainback, Stainback, East & Sapon-Shevin, 1994; Wehmeyer, 1994; Widaman, MacMillan, Hemsley, Little & Balow, 1992; Zetlin, Turner & Gallimore, 1981; Zigler & Burack, 1989). The Ball-Stick-Bird reading system, authored and pioneered by Dr. Renee Fuller, is a brain-based method that relies heavily on the use of story (Fuller, 1974, 1977, 1982, 1990, 1991, 1992). It is this method that was used for literacy training in this study.

Purpose and Rationale

Literacy is a big issue in the 1990's. Television shows and documentaries are being made about literacy, libraries have sections devoted to it, municipalities have literacy councils, English as a Second Language (ESL) classes are offered, and workshops are given on the topic. Even governments have become involved in wanting to improve literacy levels so that the educational system is perceived as being more successful. Much of the current literacy movement focuses on being a life-long learner, whose education need not cease when he/she becomes an adult or graduates from a certain institution of learning. However, many individuals with mental handicaps reach adulthood without having attained the ability to read more than a few words or signs, especially if they function below the mild range of mental retardation.

Different reasons are given for continuing to unlock the secret of literacy for those who are still unable to decipher the meaning of the printed symbol. One reason given is that it makes persons more employable (Scully & Johnston, 1991). Another reason is that literacy is a sign of membership in mainstream society (Ferguson, 1994; Szivos & Griffiths, 1990). Persons who are literate are able to access information that they want and solve the problems that they may meet on a day-to-day basis (Soifer et al., 1992). Lastly, those who are unable to read at a reasonable level may suffer from a poor self-concept (Hatt & Nichols, 1992), at least in respect to their reading ability.

Those who suffer from a poor self-concept in respect to reading may develop various coping skills and compensatory actions to cover their lack of ability, but still feel uncomfortable with it (Scully & Johnston, 1991). A history of failure in academic subjects

can lower one's expectations of their abilities (Zigler & Burack, 1989).

Researchers have devised techniques to make the task of reading simpler for those with mental handicaps. House, Hanley and Magid (1980) designed a system of logographs to teach the Trainable Mentally Retarded (TMR) to read; Sensenig, Mazeika and Topf (1989) used sign language in conjunction with the printed word. Walsh and Lamberts (1979) used various picture fading techniques. Hoogeveen, Smeets and van der Houven (1987) designed special programs to teach letter-sound correspondence to children who are classified as TMR. Scully and Johnston (1991) designed an educational therapy model for use with an illiterate adult.

Some authors and researchers feel that the area of story has a definite bearing on literacy acquisition. Elley (1989) found that the use of read-aloud stories in the classroom contributed significantly to vocabulary acquisition, even when the teacher did not explain the meanings of the new words. Renee Fuller (1991), the inventor of the Ball-Stick-Bird reading system, incorporates the use of story in her method. She theorizes that story functions as a cognitive organizer for mankind - story makes a coherent schema out of things. This enables persons with a low IQ to make sense of the material to be learned.

This author was involved in researching techniques of enhancing literacy skills to adults with varying degrees of mental handicaps through a local school board. Through the review of the literature, the author became aware of the Ball-Stick-Bird reading system. Also, a review of the literature revealed a lack of studies on the relationship between reading, or literacy level, and self-concept for individuals with a mental handicap. In some studies, it was mentioned as a secondary issue. Given the amount of literature today on

literacy and self-concept, and inclusion of persons with disabilities in society, the author decided to investigate the effect of increased literacy on the self-concept of adults with moderate mental handicaps. The implications of this research may assist professionals in the field to approach the literacy training of mentally handicapped adults in a different manner.

Issues

Given the fact that the self-concept of an individual is deemed to be an important factor in his or her ability to learn, it is necessary to see if this is important to those individuals with moderate mental handicaps. The history of academic failure may have an impact on their desire to learn to read as an adult. The attitude of the teacher and the learning environment will play an important role. The reading technique itself will be of great importance. Those with lower amounts of intelligence (as quantified by IQ tests) have long been considered incapable of mastering more than a few bits and parts of the reading process. The use of story, thought to be an integral part of life, is considered. Literacy level changes may effect changes in other areas as well, such as cognition and appearance (Fuller et al., 1975). This, in turn, could affect the perception of these socially devalued persons as they move towards more integration in the community (Wolfensberger, 1983).

Dr. Fuller, in her Bird-Stick-Ball reading system, combines many features that other researchers and authors feel are important in the acquisition of literacy.

This thesis examined these issues as they pertain to using the Bird-Stick-Ball to change the level of literacy of moderately mentally handicapped adults, and its effect on these

individuals' self-concept.

Theoretical Framework

Self-concept has been known for many years to be a factor in students' achievement. Self-concept is known to be multi-dimensional (Kearns, 1992), and hierarchical, that is, some aspects are more important to an individual than are others (Kearns, 1992; Purkey & Novak, 1984). Interaction with significant others will shape the perception of one's self (Kearns, 1992). Much of an individual's perception of himself or herself will depend upon to whom he or she is comparing himself or herself. Much research has shown that students will feel better about themselves if they compare themselves to others who have difficulty in the same areas (Wong, 1991).

The belief is that one's self-concept is fairly stable and, thus, individuals will act in ways that reinforce their beliefs about themselves (Purkey & Novak, 1984). A positive view of the future will assist an individual in working toward achievement (Strong, 1989), whereas a history of failure leads to lower expectations and lower levels of success. Some persons with mental handicaps may have the additional problem of dealing with stigma (Szivos & Griffiths, 1990).

The general belief among researchers is that students with higher self-concepts demonstrate a more positive attitude and greater levels of achievement than do those with lower opinions of themselves (Cothorn & Collins, 1992; Wehmeyer, 1994). Adults have had more failure than children in trying to learn to read and, thus, may be more reluctant to continue in their efforts (Scully & Johnston, 1991). In addition, many adults with

mental handicaps feel that they are not in control of their lives as far as making decisions about themselves is concerned (Wehmeyer, 1994). They tend to take on the values and beliefs of others important to them and be dependent on them (Zetlin & Turner, 1988). To summarize, Dechant (1991) states, "Self-concept is closely related to reading success. A pupil who does not see him or herself as a reader is not likely to develop the reading habit" (p.198).

The purpose of all reading is to construct meaning from print (Dechant, 1991), to make sense of written language. Soifer, Irwin, Crumrine, Honzaki, (1992) believe that adult literacy is more than basic reading and writing skills; it encompasses having skills to fulfil objectives of one's choosing as well as the ability to solve the problems of daily living.

Much research has been conducted on which techniques are best suited to the acquisition of literary skills for persons with moderate or severe levels of mental handicaps. Although it is a well-established fact that mentally handicapped individuals have cognitive deficiencies, they are able to learn.

The act of reading, or accessing print, requires various skills and prerequisites. Phonics analysis, or the ability to analyze words according to their sound elements, is a necessary skill. In order to be able to do this, one must have some knowledge of the letters of the alphabet, as well as some skill in auditory and visual discrimination. Various association and perceptual abilities are also required (Katims, 1991). Soifer et al. (1992) recommend using a whole language approach, not bits and pieces, to maximize the interaction between the learner, content, and context. Various researchers have found that techniques that incorporate as many senses as possible are most successful with the

mentally handicapped population.

Use of story as a teaching medium has been used with some success. Across the ages, human beings have made a story out of life's occurrences in order to make sense of them - thus cultures have their legends and their gods (Fuller, 1982). Stories are a universal medium. Fuller (1990) believes that the story unit, or engram, is so basic to the human thinking process that humans are unable to think of another way of perceiving the world. Story operates as a cognitive organizer by structuring human reality (Fuller, 1990). This structure is able to store an amazing amount of information which can then be reorganized in different ways. Fuller believes that story is the basic unit to which the brain responds. Miniature stories, or idea units, can be used to build bigger stories (Fuller, 1991). Stories can also have an affective component (Fuller, 1982). They can contain elements of novelty, humour, conflict, surprise, and suspense (Elley, 1989). When using stories for teaching, the learner does not get stuck on the mechanics of reading, but is carried along by the story (EPIEgram, 1986). Soifer et al. (1990) state that story builds on prior language and experience. Conners (1992) and Elley (1989) both found that context aids in the identification of words and the understanding of their meanings. Elley (1989) found that young children learned new vocabulary from having stories read to them. Stories can also have moral benefits in that they teach about good and evil: the reader can identify with either side.

Story comprehension begins at about 12 to 24 months for young children (Fuller, 1982). They will ask their parents to read or tell them a story. Young children will also start to tell their very own stories, using nouns and action verbs at first, then gradually

adding adjectives and adverbs. Prepositions are added last. Fuller (1982, 1991) calls this developmental linguistics. She notes that this is the way that foreign languages are taught.

The ability to be literate is deemed to be an important one in today's world. Not only does literacy provide meaning to the printed symbol, but it can serve as a memory prompt (Farrell & Elkins, 1995). Stanovich (1991) believes that reading generates the Matthews effect-that the tendency of the act of reading is to cause further development in related cognitive abilities. Fuller et al. (1975) agree. In their article, entitled Reading as Therapy, they found that changes were produced in three areas: increased verbal skills, changes in self-image, and changes in social interaction. Fuller (1990) also thought that reading skills gave a person an identity: the individual was able to put a structure on the world around him. Literacy can give the mentally handicapped population a greater value as it would enhance their competencies rather than looking at their deficiencies only (Wolfensberger, 1983).

The Ball-Stick-Bird reading system seeks to address the literacy issue by pulling various elements of reading together. House, Hanley, and Magid (1980) believe that the inability to learn the phonemic code is a problem in learning to read. For persons with a mental handicap, this could be an even greater obstacle than for others with normal intelligence. Gottardo and Rubin (1991) state the following:

Because decoding is a vital component of reading and is highly related to phoneme analysis ability, any instruction that can improve these skills in persons with mental retardation should be encouraged; it is through these abilities that individuals with mental retardation will be able to read and write new words and, in this way,

function as independently as possible. (p.272)

The Bird-Stick-Ball method uses three shapes, the circle, line, and angle, that are so basic to the human nervous system that a newborn is able to recognize them (Fuller, 1990). It uses colours to make the shapes stand out, tactile and kinaesthetic feedback to the learner during the reading process (Fuller, 1974). It uses modified phonics, code approximation, cliffhanger technique in the story-telling process, and use of story. The student learns the alphabet in the context of a fast-moving action story, rather than in repetitive drills or exercises (Fuller, 1974). The system does not require immediate mastery, but allows for guessing and flexibility (Fuller, 1975). It can be used at the learner's own speed.

Definition of Terms

The following terms are used throughout this research study: Ball-Stick-Bird (B-S-B)-- a reading system designed by Dr. Renee Fuller.

Literacy- the ability of an individual to make sense of the printed symbol and to construct meaning from print.

Mental retardation- refers to significantly subaverage intellectual functioning, resulting in or associated with concurrent impairment in adaptive behaviour and manifested during the developmental period.

Self-concept- one's beliefs about one's self, one's perception of who one is. It can include physical, behavioral, and internal characteristics.

Story- an idea unit which is fundamental to the human experience.

Trainable retardation- A severe learning disorder characterized by: a) an inability to profit from a special education program for the educable retarded because of slow intellectual development; b) an ability to profit from a special education program that is designed to accommodate slow intellectual development; c) a limited potential for academic learning, independent social adjustment, and economic self-support (Weber, 1988).

Summary

Much research has been conducted to examine the methods which are best suited to teach literacy skills to mentally handicapped adults. Some research has studied the self-concept of this same population. This study was conducted to examine the effect of literacy training on the self-concept of moderately mentally handicapped adults in a sheltered workshop in Southern Ontario. This was done through the use of standardized tests in relation to nonverbal intelligence, reading recognition skills, and self-concept, using the B-S-B reading method.

The first chapter of this thesis introduces the purpose and rationale for this study. Chapter Two examines literature which relates to the self-concept as it pertains to reading and different types of reading techniques for individuals with mental handicaps. It also looks more closely at the rationale for the B-S-B reading system. Chapter Three outlines the procedures and methodology to be used in the study. An analysis of the results will be offered in Chapter Four. Implications for further research and education will be provided in Chapter Five.

CHAPTER TWO: REVIEW OF THE RELATED LITERATURE

Introduction

The literature with respect to the self-concept of moderately and/or severely mentally handicapped adults is quite limited, although reading strategies and techniques abound. With this in mind, different methodologies of teaching reading were reviewed in order to glean successful techniques. As well, literature that pertains to the self-concept of mentally handicapped persons, the pertinence of using story as a milieu for teaching reading, and the emergence of literacy ability was reviewed. The philosophy and principles of the Ball-Stick-Bird method of reading are elaborated on in this chapter as well.

Historical Background

Historically, persons with mental handicaps have been treated as a subspecies, put away in isolated institutions, and treated in dehumanizing ways (Wolfensberger, 1983). During the feudal era, land was the possession that defined a person's worth; later on in the industrial age, it was capital, or money. More recently, knowledge-information became the important factor (Fuller, 1982). Thus, the population of mentally handicapped persons lost out, since it is deemed to have neither information-knowledge nor social value. However, in today's society efforts are being made to have this special population join the mainstream of society. One of the ways to do this is to give individuals with mental handicaps the opportunity and the tools to achieve literacy. Wolfensberger (1988) talks about a society that places a high value on intelligence, independence, and excessive learning. Traditionally, persons who were mentally handicapped were channelled into

vocational training. Their good qualities, such as directness, sociability, friendliness, lack of concern about social status (of others), and enjoyment of simple pleasures, were all but ignored (Wolfensberger, 1988).

Different communication systems, such as DISTAR, Blissymbolics, and the Edmark reading program, have been devised to assist lower functioning persons, with varying degrees of success. Researchers since the 1960's and 1970's have investigated which facets of learning to read are the most difficult for persons who are mentally handicapped, and what techniques are instrumental in assisting comprehension of the reading process.

The topic of a person's self-concept as it relates to learning is a fairly recent one. Researchers have found that learning disabled children have poorer self-concepts as they relate to academics than do their non-learning disabled peers (Wong, 1991). Very little attention has been paid to the self-concept of adults who were mentally handicapped in the academic world. It is these factors that have led the author to the combination of topics in this study.

Literacy

Literacy is different things to different people. In order to be literate, one must be able to read. According to Soifer et al. (1992), reading is a process of constructing meaning. Frager (1993) redefines reading as connecting the reader's prior knowledge to ideas presented by the author in the text. Dechant (1991) lists skills that are necessary for reading.

Development of a knowledge of the alphabet, letter recognition, ability to name the

letters, directional orientation (moving in a left-to-right progression while reading), word consciousness, acquisition of a basic sight vocabulary, awareness of the relationship between a printed word and the sound representation of that word, development of basic word-identification skills, and development of word meaning and simple comprehension skills. (p. 40)

Katims (1991) lists subskills believed to be needed for reading: letter-name knowledge, discrimination and association, visual, auditory and perceptual abilities. He believes that these subskills can all be taught if an individual does not have them. Hoogeveen et al. (1987) say that letter-sound correspondence is a necessary prerequisite skill for reading.

However, reading is much more than a collection of skills. According to Dechant (1991), the purpose of all reading is comprehension of meaning. In order to do this, one must be able to construct meaning from print. Soifer et al. (1992) call reading an active process, "in which the reader connects information from the text to information in the mind" (p. 4). Giddings (1986) talks about the goal of reading as being comprehension of what has been read. Reading means obtaining meaning from the page as well as responding to that meaning.

Oldfather and Dahl (1994) want to move from viewing reading as a collection of processes to a belief "that intrinsic motivation for literacy learning is defined by and originates in the sociocognitive and affective processes that learners experience as they engage in the social construction of meaning" (p. 139). Frager (1993) agrees that reading is not solely a collection of cognitive skills, but also uses affective resources, such as self-confidence, interest, control of negative feelings, and a willingness to take risks. Fuller

(1977) views reading ability as a way to help teach persons how to think.

Literacy for adults becomes more than basic reading and writing skills (Hatt & Nichols, 1992). It becomes a state in which persons are able to access information for daily problem-solving and fulfilling their objectives (Hatt & Nichols, 1992; Soifer et al., 1992).

Farrell and Elkins (1995) believe that literacy is similar for all populations. They do not distinguish between those with mental handicaps and others. However, as Bachor and Crealock (1986) note, those with moderate to severe degrees of mental handicap do have consistently low achievement, a serious impairment in their ability to learn concepts, to attend appropriately, and to communicate in an effective manner. Dechant (1991) adds that impulsiveness can cause problems in learning to read. Giddings (1986) notes that deficiencies in language skills can also cause problems in reading.

With all these additional problems for mentally handicapped adults, why continue to try to find ways for them to become literate? Much of the reasoning given centres around issues of membership in society, self-advancement, and attainment of knowledge. Soifer et al. (1992) believe that the acquisition of reading and writing skills is only a means to more important goals (which are central to the planning of effective adult literacy programs: self-realization, awareness of the reality of change, and the need for life-long learning). Adults should be able to define their own goals in literacy. They should be to help individuals function more effectively in society (Barudin & Hourcade, 1990; Giddings, 1986; Hatt & Nichols, 1992). Soifer et al. (1992) believe that education empowers people. Reading has various intellectual benefits. Tunmer and Rohl (1991), as cited in Farrell and Elkins (1995) suggest that some benefits from reading are increased

vocabulary, an increase in general knowledge, syntactic knowledge, metalinguistic abilities, verbal processing skills such as naming objects, and improved orthographic knowledge. Farrell and Elkins (1995) believe that print serves as a memory prompt, providing support for otherwise difficult cognitive operations. The ability to read and understand what has been read will provide the learner with the tools to express himself or herself in a more effective way (Fuller, 1977).

Fuller (1991) believes that the wealth of a mind determines one's ultimate status. This is why illiterate people tend to be looked down upon. Ferguson (1994) comments that achieving membership for people with severe disabilities is a challenge in today's society. She states:

What we really seek is not socially effective communication repertoires at all, but membership, specifically participatory, socially valued, image-enhancing membership. The purpose of all of our intervention, programs, indeed, schooling in general, is to "enable all students to actively participate in their communities so that others care enough about what happens to them to look for ways to include them as part of that community" (p. 10).

Obviously, achieving literacy for mentally handicapped adults will not be a simple task. Giddings (1986) holds a common viewpoint when she states that the development of a basic sight vocabulary (including survival words) is more important than the teaching of concepts such as democracy and loyalty to this group of readers. Ways to teach words are many and varied. Giddings (1986) believes that, due to the population's difficulty in language and concept development, more must be done for the student than simply

showing and telling the new word. She suggests having the student experience the words in as many ways as possible: taste, see, smell, use oral language, identify physical characteristics of the word, and use a kinaesthetic approach. Dechant (1991) takes this further. He wants the teacher to tell the learner how to "look at a word, scan it, scrutinize it from left to right, and to inspect it very carefully" (p. 268). The teacher should draw attention to the word by various ways: underlining, framing, colouring, finding it in a sentence, and saying the word aloud to keep it in STM longer.

House, Stanley, and Magid (1980) thought that visual symbols could be used in teaching reading to mentally handicapped individuals. They postulated that some of mentally handicapped persons' reading difficulties could be due to the complexity, or difficulty, of the alphabetic system. They designed a system of 16 logographs for TMR adults in order to investigate the efficiency with which their participants could learn them. Various researchers believe that using signs that are more iconic will make the task of symbolic representation easier for TMRs (as cited in Hoogeveen et al., 1987; Griffith & Robinson, 1980; House, Hanley, & Magid, 1980; Hurlbut et al., 1982; Lancioni, 1983; Lancioni, Smeets, & Olivia, 1984; Murphy et al., 1977; Reid & Hurlbut, 1977; and Sensenig, Mazeika, & Topf, 1989).

During the past few years, research has centred on skills of word analysis (vowel and consonant sounds and sound and syllable blending) (Conners, 1992). For children with moderate mental retardation, one key method involves sight-word instruction. This method teaches the reader to recognize a word by sight, not by sounding it out. Conners (1992) lists the three main sight-word instruction techniques as being delay, picture fading,

and picture integration. In delay techniques, a response prompt and delay between presentation of a word and teaching it is used. The student receives reinforcement for a correct response within a specified time limit. The time delay can be constant or increased in intervals. In this way, the stimulus control (teacher's pronunciation) is transferred to the stimulus (the written word). In picture-fading techniques, pictures are used as cues for written words, and then the picture fades out while the word maintains its intensity. Stimulus control is transferred from the picture to the word as the picture fades. The theory is that the picture will gain initial attention, and as the fading occurs, the attention will shift to the word, the relevant cue. The third method is that of integrating a picture and a word together. Miller and Miller (1986), as cited by Connors (1991), sought to ensure to their subjects that words represent objects by spelling words that had characteristics of the object. An example is that of spelling the word *candy* in candy cane letters.

Studies of word analysis, or phonics-based, methods are reviewed by Connors (1992). Children with moderate mentally handicapped are capable of learning word analysis skills. Hoogeveen et al. (1987) taught letter-sound correspondence to children by integrating a letter with a pictorial representation of its sound (for example, a snake for the letter s). A variation of this was done by Hoogeveen, Smeets, and Lancioni (1989), as cited in Connors (1992). They used a letter integrated into the picture it represented. An example of this would be putting an i in an icecube. Other studies cited in Connors (1992) use various blending sounds and sounding out techniques. Another method of reading instruction can be used for those who are able to read simple passages. This method,

called the error-correction technique, or positive practice or overcorrection, has the teacher supply the word to a child who makes a mistake. Then the child points to the word, repeats it five times, then rereads the sentence (Singh & Singh, as cited in Connors, 1992).

Although it is a well-established fact that mentally handicapped individuals have strategy deficiencies in the area of cognition, Bray et al. (1994) feel that they do have some strategies and do try to remember. They recommend that any strategies used be taught in an overt manner.

Story

Story is a widely used medium for teaching. Therapists and teachers have known for a long time that, by making a story out of an event or a relationship, understanding of it can be gained (Fuller, 1982). The Bible uses parables to get a point across. Fables and fairy tales are widely used in different settings and cultures for moral purposes.

Stories are interesting, and interest aids in comprehension. Interest and motivation on the part of the learner can compensate for negative factors, such as physical deficiencies, limited experience, and even low intelligence (Dechant, 1991). Elements of humour, conflict, surprise, or novelty in a story may assist the learners' language processing if they focus on meaning rather than form (for example, entertaining stories read aloud instead of paper and pencil exercises) (Elley, 1989). He also believes that the use of stories can arouse the attention levels of students, thus making them more amenable to instruction. Higher interest levels lead to improved comprehension (Frager, 1993). By using whole

texts such as articles, stories, and books, students can interact with the text to construct meanings that build on their prior language (Soifer et al., 1992). Giddings (1986) emphasizes that stories that are within the grasp of the students are most helpful when dealing with the mentally handicapped population.

Fuller (1990) maintains that the use of story is so effective because it is basic to the human thinking process. She believes (1974) that, even if an individual is badly brain-damaged, he or she will still maintain story comprehension ability because it is so basic to the human species. Plato hypothesized that the mind is already partially organized and it determines what is learned and perceived (Fuller, 1982). It is not a blank slate at birth, upon which various bits of experiences are imprinted, as Aristotle theorized (Fuller, 1982). In EPIEgram (1986), the author notes that "brain-compatibility theorists view the human brain as a pattern-detecting organ; because of this view, they favour schooling that encourages the development of insight into the patterns that help learners make sense out of the world around them" (p. 1). They agree that humans are constantly trying to make sense of their environment by "seeking and sensing patterns that activate genetically transmitted programs within the brain" (EPIEgram, 1986, p.2). In the Ball-Stick-Bird reading system, the story is the basic pattern to which the brain responds.

In order to make life coherent, humans make a story of it (Fuller, 1982). "Story engrams represent an extraordinary solution to information overload. By imposing a structure on millions, even billions, of bits of information, their rapid reintegration and retrieval becomes possible" (Fuller, 1992, p. 122). Schema theory, or story grammar, talks about organizing knowledge in the same way (Bachor & Crealock, 1986). People

use their prior knowledge to guess what will come next in a story.

Fuller (1982) discusses how the story engram aids in memory. The number of information bits that can be kept in the human brain is generally believed to be from five to seven. The story bypasses the limits set on chunk size. A story can contain a very large amount of information bits in it. The story engram works efficiently by allowing more information to be processed and retrieved in a shorter time. Information that is stored in the human brain can be organized, stored, and recombined in different ways (Fuller, 1990).

As humans, stories can be encoded on an emotional as well as factual level (Fuller, 1982). They can tap into every emotion known to man. They are retrieved according to the mood one is in; that is, if one is having a sad time, sad stories will be recalled. While this is happening, learning, or experience, will be encoded.

The essential components of a story engram are as follows: someone or something (a noun) is acting or being acted on (a verb). Other parts of language (adjectives, adverbs, prepositions) are the conceptual elaborations (Fuller, 1982). Story engrams can vary in difficulty and/or complexity. They can be as simple as tabloid headlines or political sound bites. Fuller (1992) reiterates that the reason they are so effective is because they tap the fundamental unit of cognitive organization.

Self-Concept

Self concept is a person's perception of who they are. It includes all the attributes and characteristics about one's self (Kearns, 1992). It is not something one is born with, but something that is constantly being sorted and evaluated (Purkey & Novak, 1984). It is "a

major controlling factor in our behaviour and determines to a large extent our success in life" (Kearns, 1992, p. 3). It is "the belief of a person that he has unique talents, strengths, and qualities, and these characteristics are recognized and appreciated by others" (Strong, 1989, p. 39). Furthermore, it "is a complex, continuously active system of subjective beliefs about personal existence" (Purkey & Novak, 1984, p. 29). Self-concept is deemed to be multi-dimensional, that is, made up of many parts (Kearns, 1992). It is hierarchical, that is, some parts of the perception may be more important to an individual than are others (Kearns, 1992). The view that one holds of one's self is reasonably stable and consistent; these views may be very resistant to change (Kearns, 1992; Purkey & Novak, 1984). There is also a dimension to self-concept that evaluates its perceptions and puts them in positive or negative terms (Kearns, 1992). Therefore, one's self concept serves as a guide to behaviour.

Individuals with mental handicaps may have had some experiences that shaped their self-concepts differently from the rest of the population. Zigler and Burack (1989) state that research has found that the same variables that affect non-mentally handicapped persons (SES, institutionalization, and history of successes and failures) affect mentally handicapped personality development. They believe that persons with mental handicaps share the same aspirations, joys, sorrows, and problems as people with normal intelligence. However, additional factors may come into play in personality development. Prizant and Wetherby (1990) note that, even in early childhood, differences may be present that shape the mentally handicapped personality. They found that there are often decreased positive parent-child interactions with special needs children. Positive

socioemotional development is important, they maintain, because it establishes secure and positive relationships, a sense of self as distinct from others, and it regulates emotional arousal as well as assisting in the child's development of capacities to experience and express a variety of states.

Later on, negative experiences may occur that impact on personality development. Name-calling can lead to negative self-concept by the individual internalizing these names, thus leading to self-fulfilling prophecies (Strong, 1989). Stigmatizing actions and feedback, for example segregation, can lead to feelings of lower self-worth (Leahy, Balla, & Zigler, 1982; Strong, 1989; Zigler & Burack, 1989), especially if this negative feedback comes from persons that are perceived to be important or significant. The overprotectiveness that many mentally handicapped persons experience expresses the belief that they are not able to care for themselves (Strong, 1989).

Zetlin and Turner (1988) questioned the adequacy of understanding of self-concept for different populations and age brackets of mentally handicapped persons. In a study of mild to borderline mentally handicapped adults, Szivos and Griffiths (1990) found that they tried to pass for normal in order to deal with the stigma of retardation. The question arises as to whether individuals with more severe mental handicaps are able to understand the stigma that is attached to them. Tajfel (as cited in Szivos & Griffiths, 1990) proposed that members from disadvantaged groups could either assimilate or pass into the mainstream, or they could construct a positive identity based on being different. Whatever the level of disability, some researchers note that it is important to acknowledge the handicap and its accompanying abilities and disabilities, both to one's self and to others

(Szivos & Griffiths, 1990; Stainback et al., 1994).

Whatever the variables are that make up personality, Zigler and Burack (1989) found that "life experiences of persons with MR have been shown to lead to personalities that are often characterized by overdependence on others, low aspiration levels, and outer-directed problem-solving styles" (p. 255). Their lack of successful experience in life can lead to the adoption of less than optimal but safe strategies, and learned helplessness. Their perceived intellectual inadequacy leads to a lower self-concept.

In the academic realm, there may be repercussions from this. Sometimes experience serves as a barrier to effective learning (Cantor, 1992). Most adults who are poor readers have negative feelings about school, reading, writing and themselves (Soifer et al., 1990). Bachor and Crealock (1986) state that "negative self-concept is often tied to learning problems" (p. 102).

The evidence seems to indicate that childrens', or students', beliefs mediate their response to instruction (Wong, 1991). Dechant (1991) says that, according to holistic theory, learners are active and constructive, rather than passive and reactive. They will try to avoid anything that brings too much mental disequilibrium. Alexander and Filler (as cited in Cothorn & Collins, 1992) talk about two phenomena that have been found in the area of self-concept. One is counteraction. The students have had repeated negative experiences with reading, with results of attempts to avoid the reading act through refusal, disinterest, or lack of effort. Scully and Johnston (1991) add that people may develop such defenses as withdrawal, denial, rationalization, and projection, and eventually may not wish to look at a situation that has become painful for them. Those who are

unsuccessful may not wish to feel the pain of failure again and may accept themselves as failures as a method of self-defence (Purkey & Novak, 1984). The second phenomena that Cothorn and Collins (1992) refer to is spiralling. Behaviour becomes either increasingly positive or negative, and efforts to redirect the behaviour are difficult. Dechant (1991) supports this view when he says that a person who does not see himself or herself as a reader is unlikely to develop the reading habit.

Therefore, motivation and belief in one's self become central to the learning process. Cantor (1992) notes that if a learner does not see a need for the information that is being disseminated, or has a high anxiety level, efforts to teach will not be met with much success. McCormick (1994) theorizes that an instructor needs to focus on the reader's deficits, motivational factors, cognitive behaviours, and the learning environment. If a learner has a high anxiety level, it will interfere with his or her ability to focus on the learning task. This, in turn, leads to greater academic frustration and lowered motivation to learn (Kearns, 1992). Generally, students with higher self-concepts reveal more positive attitudes and greater levels of achievement (Cothorn & Collins, 1992).

Strong (1989) believes that a person with a positive self-concept feels competent, and worthwhile, and is able to recognize his or her strengths and abilities. Often persons with mental handicaps do not recognize their strengths, needs, or feelings, and tend to think of their lives in terms of their limitations. Learned helplessness, a belief that one cannot help one's self, can result. If they tried hard and failed, it was further proof of their inadequacy, say Zimmerman and Alebrand, as cited in Purkey and Novak, (1984). Cantor (1992) says that learned helplessness can be intensified in the academic area, with resulting loss of self-

esteem, belief in one's own powerlessness, and that fate controls life, plus other dysfunctional emotions.

Bachor and Crealock (1986) believe that for individuals to achieve a positive self-concept, they must believe that their success is due to their own efforts. Many mentally handicapped individuals have an external locus of control. Locus of control refers to the degree to which an individual believes that things happen within his or her control (internal), or outside of the person's control (external- could be luck, fate, chance, method, or someone else's intervention) (Bachor & Crealock, 1986; Wehmeyer, 1994). Zigler and Burack (1989) found that 'normal' children tend to get more inner-directed as they grow older. This is due to the fact that they have greater cognitive abilities and increased independence. The same does not hold true for the mentally handicapped population. The relationship between locus of control and academic achievement has been researched extensively. Findlay and Cooper, as cited in Wehmeyer (1994), found that an internal perception of control was shown in greater academic achievement, with the strength of the relationship being weak to moderate.

In conclusion, it is important for mentally handicapped learners to have successful experiences in the classroom on a continual basis if they are to improve their self-concepts. Success in the classroom will not only have an impact on the learners' self-concept, but it will likely have an effect on the way they are perceived by others too, according to Farrell and Elkins (1995).

Invitational Learning

Thus, the learning environment becomes of great significance to the mentally handicapped learner, who most likely has experienced a significant amount of failure, with an accompanying lowering of self-concept. Both staff and learner expectations can influence the outcomes for students (Farrell & Elkins, 1995). The invitational education approach, promoted by Purkey and Novak (1984), is one that incorporates many features that are important in working with mentally handicapped learners. It is a perceptually-based, self-concept approach to education. These theorists believe that "people are able, valuable, and responsible and should be treated accordingly" p.2. It is suggested by Cantor (1992) and Kearns (1992) that the instructors get to know their students on a personal level. Nonverbal communication can be used to exhibit openness and interest. The instructor should exhibit enthusiasm and caring for the students. Purkey and Novak (1984) also think that teaching should be a co-operative activity. The learners' opinions and experiences should be respected (Cantor, 1992). In working with mentally handicapped adult learners, their interests and abilities should be focused on more than their deficits.

The invitational education approach believes that people possess relatively untapped potential. Anxiety and frustration that have built up over the years can inhibit the realization of this potential by reducing the students' ability to learn. An atmosphere of trust between the student and the teacher, in which the learners' emotional needs have been addressed, is vital (Scully & Johnston, 1991). Fuller (1977) found that even her severely retarded learners were able to get jobs and move out of the institutions after they

had learned to read and communicate. These were considered to be unattainable goals prior to learning to read, which had been considered to be out of their reach as well.

Lastly, invitational education promotes "inviting places, policies, and programs" (Purkey & Novak, 1984, p.2). Professionals who work with mentally handicapped learners need to be accepting of the population, provide a warm and caring atmosphere, and believe in their learners.

Ball-Stick-Bird Reading System

Various researchers and theorists believe that learning the art of reading takes place best if it is approached in a manner other than bits and pieces. Conners (1992) notes that current education philosophy integrates reading into a broader based focus on communication and literacy, on gaining meaning from print and not just on identifying individual words. Research for reading for moderate mentally handicapped adults focuses almost exclusively on identifying individual words. Dechant (1991) states that whole language proponents believe "that children acquire language through using it and that reading should work in the same way. They believe that children learn to read by reading" (p. 177). Farrell and Elkins (1995) believe that less efficient learners need more time, more guidance, and more practice.

Fuller integrates these beliefs into the B-S-B reading system. An overview of the B-S-B system is outlined here, as given in the Teachers Manual, Fuller (1974a, 1975g). The basic forms of a circle, a line, and an angle are used to create each letter of the alphabet. The shapes are given the names of ball, stick, and bird, and appear in different colours.

The alphabet is taught through four (visual, auditory, tactile, and kinaesthetic) sense modalities instead of the usual two. In this way, deficits that a student may have in one area can be compensated for by strengths in another. The letters are taught in a non-alphabetic sequence to facilitate the learning process. The letter with the simplest form ("I") is presented first. Letters that are similar in appearance are introduced far apart to avoid confusion. Letters that are similar in sound are placed far apart to avoid sound confusion. Letters with high frequency use are presented early to assist in word forming. Letters with identical sounds (C and K, and E and Y) are presented contiguously.

The initial memory load is reduced in several ways. Letters are not taught by their names, but by their sounds. Capital letters only are taught, which means that 26 rather than 52 associations need to be learned. Letter reversals are avoided because the Big Stick is always first. Letter learning is anchored immediately through usage. The first word is taught after two letters are presented, and story reading begins after learning the fourth letter.

A cliffhanger technique is used in the books. The student must learn a new letter or reading principle before continuing on in the story. The student is not required to make fine-tuned auditory discriminations at first. The learner is told that there will not be 1:1 letter-sound correspondence, but that he/she is a detective, letters are clues, and he/she must figure out the word. The vocabulary of the stories is current, talking about rockets and planets and electricity.

The story is taught in a developmental linguistic approach, in which nouns and verbs

are taught first. Articles, pronouns, adjectives, adverbs, and prepositions are introduced gradually. The book is laid out in logical thought units, which then teach punctuation. The B-S-B system functions as a non-failure system because it does not require immediate mastery. Lessons are repeated in more than one book, and students continue from one lesson to the next even if they have not learned what has been presented.

Summary

Methods of delivering literacy skills to mentally handicapped adults come in a wide range. The conceptual biases affecting the ability to learn of those below the mild range of retardation could be a problem. Social perceptions of the lower functioning individuals can have a negative influence on the delivery of services. The opposing views of teaching reading skills in discrete parts rather than in the context of a whole process are explored. Story, believed by some theorists to be the basic cognitive organizer, is used to facilitate the reading process. It has impressive results when used in the B-S-B reading system.

The implications of a positive or negative self-concept have a major impact upon a learner's academic behaviour. It is generally believed that the higher a person's self-concept is, the more that person will be able to achieve academically. A poor self-concept diminishes motivation, may lead to high anxiety levels and evasive behaviours, or learned helplessness. In fact, Frager (1993) states that "the ability to overcome the affective obstacles that occur during reading may be the critical characteristic that better readers have and poorer readers lack" (p. 619). The invitational education process summarizes positive beliefs and steps that can be taken to minimize the negative influences that prior

learning experiences may have had.

The B-S-B reading system combines ways of teaching that are recommended by various theorists. It teaches language in a story context, maximizes the number of senses used in learning, reduces memory load in its method, and uses developmental linguistics.

It is within this context that the role of literacy level upon self-concept of moderately mentally handicapped individuals is explored.

CHAPTER THREE: METHODOLOGY AND PROCEDURES

Introduction

As described in Chapter Two, very little literature exists that examines the self-concept of moderately mentally handicapped adults as it relates to literacy. Different techniques of teaching reading, some of them short-term and some of them much longer, have been reviewed. The role of self-concept, and how it is studied for this population, was examined. The rationale of the Ball-Stick-Bird reading system was given. This study focuses on the self-concept of the adult mentally handicapped learner as he/she is involved in the process of receiving literacy training.

Sample Selection

The sample of participants for this study was selected in two stages. In the first stage, individuals at a sheltered workshop were selected by the staff there to participate in a literacy research project in which the author of this study was involved. Those individuals were then screened for level of reading ability. They were divided into three categories on the basis of this screening: (a) readers were Grade Two or above; (b) beginning readers were those at the Grade One level; and (c) logographic readers were those who were able to read a few single words, recognized signs or some letters of the alphabet. Out of the third group, the logographic readers, a certain number of participants were randomly selected for the literacy research project. There were 18 persons remaining in this group. In the second stage, a purposive sample was selected. In a personal communication with Renee Fuller (1995), the author was advised to remove any epileptics from the sample group, as the B-S-B reading system is not effective with them. This is because the

electrical impulses present in epilepsy prevent the putting together the pieces as a whole (Fuller, 1975). After reviewing the individuals with the workshop staff, five were removed. One individual who was approached refused to participate, citing work reasons (he held a part-time job outside of the workshop). This left twelve persons. Reading lessons were begun with twelve individuals. After a couple of sessions, one young man began very evasive behaviours when the researcher appeared and made bizarre noises instead of responding to the lessons. After discussion with the staff, he was dropped from the study. Another young woman was very enthusiastic about her 'reading lessons', but her attendance was so sporadic that her data were unable to be used. A third woman attended the sessions regularly, but left on an extended vacation before the post-testing could be completed. For this study, then, nine participants completed the entire set of sessions. There were seven females and two males. All were Caucasian. Mean age of the participants was 36.7, s.d.9.18.

Instrumentation

This study used three standardized tests. The TONI (Test of Nonverbal Intelligence) is a language free measure of cognitive ability designed for use with people who are unable to read or write or who have impaired language skills. It uses a problem solving format in which participants identify relationships among abstract figures. Instructions are pantomimed and responses are pointed. Reliability of this test with deviant populations was at least .80, using all of the Kuder-Richardson coefficients.

Its concurrent validity exceeded the level of .35 that was acceptable. The PIAT

(Peabody Individual Achievement Test) Reading Recognition subtest was used to establish age and grade level equivalents. Subjects are to find a letter match among four alternates. Each person was started at item one. Reliability coefficients ranged from .81 to .94 for normal subjects from Kindergarten to Grade Twelve. The PIAT's concurrent validity with the WRAT Reading was .95. The Piers-Harris Children's Self-Concept Scale is a self-report measure. The scale is composed of 80 items that are to be read by the participant and answered Yes or No. The version given to the participants in this study was revised according to a study done by Benson and Ivins (1992). Wording of the items was changed from 'I' to 'you' since they were read to the participants. Wording of the items was changed to reflect an adult perspective, that is, 'school' was changed to 'work' where appropriate. Items 10 and 30 had no suitable workplace equivalent and were deleted from the scale. The total number of items on the scale was reduced from 80 to 78 and the scores were pro-rated. Item number 10 loaded on the Anxiety scale, and item number 30 loaded on the Intellectual and School Status scale; these scores were then pro-rated as well. The test-retest coefficient reliability with mentally handicapped and emotionally disturbed students was .42. No concurrent validity measures were given, but the correlation between the Piers-Harris and the Lipsett's Children's Self-Concept scale, when used with a special population was .68.

Research Design and Methodology

A single group, pretest-posttest design was used in this study. This was done to determine the cause and effect relationship between literacy and self-concept. In this

study the independent variable (what is manipulated) is the literacy level. The dependent variable (the outcome measure) is the self-concept score. The Null Hypothesis is that there will be no change in the self-concept scores after using the Ball-Stick-Bird reading system to effect a change in the literacy level of moderately mentally handicapped adults.

The three pretests were administered in the same order for each participant, pretest and posttest. First the PIAT was given, then the TONI and, on a second day, the Piers-Harris.

Method and Data Collection

Each participant received individual reading lessons in a part of the workshop that was separated from the other by room dividers. Each lesson lasted from five to twenty minutes, according to the tolerance and interest of the participant. Each participant received a minimum of 22 lessons over a period of 13 weeks (range=22-27 lessons). The lessons were given following the B-S-B Teachers Manual (Fuller, 1974a, 1975g). The students were told the sound the letter makes, asked to repeat it, and then to make it using the shapes given to them. They were then asked to give the sound again. Depending on the students' interest, they were asked to find all the just-learned letters in the word lists at the bottom of the page or they could read the words. If their pronunciation was poor, the teacher corrected it twice, then left it alone. Verbal reinforcement was used rather than eye contact. If the students gave the letter name, they were asked for the sound. Use of fingers to follow along for the students was encouraged; it was discouraged for the teacher. The lessons continued through the entire book, even if the students did not master the lesson. The system is designed to repeat itself. Comprehension questions were

asked as designated in the manual. Students were taught to look at each letter and to put two sounds together, then to combine the third letter with the first two, and so on until they had put the word together in its entirety. For those students who felt unable to sound out all the words, they were given the option of having the researcher read it to them. Some of the participants exercised this option regularly. All participants completed a minimum of the first book in the series.

A record was kept of each individual's progress in these areas: making letter sounds, making letter shapes, method of sounding out words, and answers to comprehension questions. Notes were also kept on any changes in behaviour that were observed by the researcher. (See Appendix B for more qualitative analysis).

Data Analysis

The data were analyzed by giving descriptive results of each individual. This included comments on any changes in their reading behaviour and learning disabilities. Means and standard deviations are provided for each of the three pre- and post-tests. A t-test comparing the means of the pretest to the posttest is included.

Limitations

The limitations of this study appear to be related to the size and site of the research population. The sample size is small ($n=9$). The research was limited to moderately mentally handicapped adults in one sheltered workshop in an urban centre in Southern Ontario. The self-concept scale used was modified in a similar way to that done in Benson

and Ivins (1992) study. The questions may not all have been completely understood by all the participants. An assumption was made, based on the researcher's review of the literature, that the B-S-B system was an effective tool in achieving literacy for individuals with moderate mental handicaps. The time frame used in this research study may not be long enough to achieve any measurable results.

The fact that parametric statistics were mapped onto nonparametric data may have weakened the power of the t-tests used in this research. Although the t distribution is robust enough to give adequate approximations to probabilities when the population is not normal, (Hayes, 1973), this particular sample might not have been large enough. Consequently, the statistical data should be interpreted with caution.

CHAPTER FOUR: RESULTS

Introduction

This chapter presents the results of the study. There are three sections to the findings. The first is descriptive results of each participant. The second is descriptive statistics and the third is the t-tests.

Section One- Descriptive Results

In this section some information is given about each participant. As well, changes in their reading behaviour throughout the study are noted and observations about their learning styles are given. Pseudonyms are used for each participant.

Kate was a 36-year-old woman who was diagnosed as having severe mental retardation. She had problems with her mouth: hypernasality and hypertonic oral musculature which had an adverse effect on articulation. She had some schooling at institutions where she had resided in the past. Kate received a total of 25 lessons. Out of the sounds to be made in the B-S-B lessons, Kate had 12 out of 26 correct. Sometimes she gave no response, sometimes she just did not remember. She reversed d for p. In making the letter shapes, she made 20 out of 26 correctly. At first she required some assistance. She appeared to have some perceptual problems -she would use big sticks instead of little ones and place the birds upside down. During the reading lessons, she did not even appear to see the letter 'I' until the last four sessions. Her finger just slid over the letter as if it was not even there. Kate had some trouble with the comprehension questions- she frequently gave the answer "he's happy", regardless of its appropriateness. In each reading session, Kate needed a lot of help with the letter sounds. She tended to

give the word 'snake' consistently for the letter 's'. In some sessions, the researcher would give her the choice of reading or being read to: she varied from session to session. At first, Kate pointed randomly to letters on the page. After a month, she was pointing to the letters in the proper direction and sequence, and also without covering them with her pointing finger. There was a lot of inconsistency in the correctness of her answers from day to day. Kate had a friendly, outgoing personality and always appeared to enjoy the lessons.

Julie was a 43-year-old woman who lived independently. Her file did not give any indication of her past education. She received a total of 26 lessons. She had some reading ability. She made 26/26 letter sounds and 26/26 letter shapes correctly. Generally, she understood the story and answered the comprehension questions appropriately. Julie was always in a hurry in her reading. She was encouraged to put her finger under the words that were read to keep her place. She would then slide her finger along very quickly. She would usually get the sounds of the letters correct, but would then just say a word that started or ended with that letter. It was difficult to get her to slow down enough to even correct her errors. She also evidenced difficulty in putting the sounds together at all. Some word reversals were evident, for example, 'TOD' for 'DOT'. She consistently called the letter 'T' an 'L'. Once she had seen a word on a page, she remembered it for that day. She did a lot of guessing - DARK for DICK was a common one. In the last few sessions, Julie sounded out the words, then read them correctly, especially if they had been used for awhile. Julie was very eager to get to Book Two in the series and was proud of herself for finishing the first one. She always came eagerly for her lessons and claimed that she

enjoyed the B-S-B method. Her attendance at the workshop had been somewhat sporadic, but during the course of this study, Julie was infrequently absent.

Susan was a 25-year-old woman with Down's Syndrome. She had previous schooling during her developmental years at the local schools for mentally handicapped, leaving at the age of 21. She had a total of 23 reading lessons. During the sessions, she made all the sounds and shapes correctly, determinedly working at the shapes until they were the same as the models. Generally, she seemed to understand the comprehension questions and was able to answer them appropriately. Susan's improvement during the course of the study was wonderful to see. After a few lessons, when Susan came upon a word that had appeared regularly, she would exclaim "I member that word!" and would proceed to read it. At first, Susan sounded out all the letters, and correctly too, but she needed help putting the words together. By the sixth lesson, she was sounding out each letter and then putting the word together by herself. About half way through the sessions, she read the words without sounding them out first. Eventually she read entire phrases. She was a very cautious learner- there was no guessing. If there was any uncertainty, she sounded out the word. Susan completed Book One and half of Book Two. She always came willingly to the sessions. As she became more proficient at the process, she wanted longer lessons.

Lynne was a very verbal young woman of 29 years. She was diagnosed as being at the high end of severe and low end of moderate mental retardation. She had a severe G.M. seizure at the age of two, which was considered to be the cause of her developmental delay. She has not been on anti-convulsant medication since the age of five. She had

received some schooling at the local schools for mentally handicapped students. During her 24 lessons, she had no problems with making either the letter sounds or shapes correctly. Generally, she understood the comprehension questions and answered them appropriately, although sometimes they had to be read more than once to her. Lynne was able to discriminate the letters. She would pick out all the words that were the same on a page, for example, all the GOs. Often she gave the letter names instead of the sounds and had to be reminded to give the sounds. She consistently sounded out the letters, but had trouble putting the sounds together. Problems that Lynne had were in guessing words (DICK for ROCKET or DARK), and adding or deleting letters (reading AND for A). From the fourth lesson on, Lynne was able to read some words independently (CAT, HAPPY). Halfway through the study, she was reading phrases on her own. By the last eight lessons, there was more consistency in sounding out the letters and reading the word, or in just reading the word. Lynne was always eager for her turn to read; she wanted lots of reassurance that she was doing well and was indeed learning to read. She was very happy to have completed the first book and be partly through the second. Unfortunately, she became more easily distracted by the noise in the workshop as time went on.

Sandra was a 48-year-old woman with a speech impediment. No educational history was given. She received a total of 22 lessons. She was able to make 16/26 sounds correctly, although some of them were quite difficult for her. She was able to make all the letter shapes with no problem and pick out letters from words correctly. Sandra responded to most of the comprehension questions and seemed to understand at a very

simple level. On a daily basis, Sandra needed help with remembering the sounds. After nine lessons, she asked me to read the stories to her. They were read by the researcher, with Sandra repeating the word as we pointed to it. By the last few lessons, she did not even attempt any reading behaviours, and showed very little enthusiasm for the lessons. She often told the researcher about some physical complaint. She continued to show affection for the instructor, but not the learning.

Tonya was a 48-year-old woman with Down's Syndrome. Some slight hearing loss was reported. No educational history was reported. Her speech assessment said that she had trouble verbalizing, and that she was easier to understand in context. She received 22 lessons. Of the letter sounds, 2/26 were made correctly. Sometimes she tried, and sometimes she gave no response. With the shapes, she needed help at first until she got the idea of it. For the 20 comprehension questions, no response was given for seven of them; for others, she pointed to body parts on the page, or just pointed in general and made an 'unh' sound. Tonya had a great deal of difficulty with all the reading tasks: generalizing big letters to smaller ones, picking out letters from words, and following the story with her finger. She would slide her finger back and forth under the word. Due to her difficulty with articulation, the researcher read the stories to Tonya. Midway through the study, she began to put her finger under the words as they were read. Tonya always enjoyed the lessons.

Lorrie was a 43-year-old woman with Down's Syndrome who was classified as being in the high range of severe mental retardation. She received some schooling at the local elementary school for mentally handicapped students. She received 27 lessons. Of the 26

letter sounds, she made 23 of them correctly. She had no teeth, so the s and z sounds were especially difficult for her. She made 26/26 shapes correctly. She would sit and look at the pieces, and then pick up the correct ones. She had very little trouble with letter discrimination. She was able to pick out all the letters from words when asked. The comprehension questions were understood and answered correctly. Lorrie caught on to the procedure very quickly. She made most of the sounds correctly, but needed assistance putting the words together. When she got to the last letter, she would often give a word that began with that letter, for example, sounded out PATS, then gave it as STOP. She was able to remember words that were learned from day to day. After five weeks, she began to sound out words, then read them. By the end of the sessions, Lorrie was softly saying the sounds, then reading the words. Lorrie was so enthusiastic about the reading lessons that she would go looking for the instructor if she thought it was time for her turn. Sometimes the researcher would return to the room to find Lorrie seated at the table with her finger in the book looking for words that she knew, and giggling aloud as she read them. She insisted that the instructor go to her home with her and show off to her father. When the instructor was ready to leave, she found Lorrie seated on her bed, sounding out the headlines of the newspaper.

The eighth participant was a 25-year-old man named Kent. He was diagnosed in the severe range of mental retardation. He was classified as having mild psychomotor epilepsy, although there was no indication of whether he received medication for it. His records showed that he had received some schooling. He received 24 lessons. He made 12/26 letter sounds correctly. His favourite part of the entire program was making the

letter shapes, which he did correctly all of the time. Once Kent had made the shapes, it was difficult to get him to attend to the story. Sometimes there simply was no response to the comprehension questions; at other times it was correct, or unintelligible mumbling, or unrelated to the topic. He was able to discriminate the letters quite well, but did not do very well at sounding out the letters for words. After the first four lessons, the stories were read to him. He was very easily distracted and wanted to talk about others instead of attending to the lesson. He did seem to enjoy the time spent with the instructor and would often go and look at the books, making the letters as he went through it.

John was a 34-year-old, moderately mentally handicapped man who had suffered brain damage at birth. He had some schooling at the local schools for mentally handicapped persons. He received 27 lessons. He made 23/26 sounds correctly, and all of the shapes. Sometimes the comprehension questions had to be repeated, but generally John understood the passage and answered the questions correctly. He had no trouble with letter discrimination. John tended to give the letter names instead of the sounds, but was able to give the correct response when he was prompted. Most of the time, the letter sounds were correct, but he needed help putting them together to form words. If he did not recognize the word, he would sound it out and try to put it together. John began to guess as the study proceeded. If he saw ON, he would say OFF, then have to go through the procedure. About halfway through the sessions, John began to recognize words. He would flip back to the page that it had first been presented on to cue his memory, then go on to read it correctly that day. Eventually, he got to the point that he would sound out the first two letters of a word, and then read it. Also, he commented about SPOT and

SPOTS being almost the same. John loved his lessons and he always had his coffee break reading. He also would sit down at the table and read if no one else was there, and he stayed as long as possible.

Section Two- Descriptive Statistics

The results of the standardized tests, both pre and posttest, are given in tables. Table 1 presents the data from the TONI test, which was given to establish a level of nonverbal intelligence. Raw scores, TONI quotient, and percentile ranks are included. Of the nine participants, one score decreased, two had no change, and six increased from one to six points. Table 2 presents the data from the PIAT Reading Recognition subtest, which was used to establish each participant's reading level. Raw scores, age and grade equivalents are included. Three participants increased their scores from one to six points, one had no change, and five decreased their scores in a range from one to seven points. Tables 3 and 4 present the data from the Piers-Harris Children's Self-Concept Scale pre and posttests, respectively, which were used to determine each participant's self-concept. Total scores and their percentiles are included- a high score represents a favourable self-concept, while a low score is associated with a low self-concept. Average scores for this scale are considered to range from the 31st to the 70th percentile. In the pretest condition, percentiles ranged from 27 to 99; in the posttest condition they ranged from 36 to 98. The lower self-concept may be specific to certain areas, or generalized. For this reason, scores from each cluster are included. The Behaviour cluster reflects the participant's denial or admission of problem behaviour. One score remained the same, and eight

increased by a range of one to eight. The Intellectual and School Status cluster reflects the participant's assessment of his or her academic or intellectual abilities. Four participants scores increased by one to four points, and five decreased by one point. The Physical Appearance and Attributes reflects the participant's attitudes about physical appearance and other qualities such as leadership and ability to express ideas. Three scores showed no change, two increased by one point, and four decreased by one point. The Anxiety cluster measures various emotions, like worry, nervousness, shyness, sadness, and fear. Five participants' scores increased by a range of one to seven point six, two decreased by one point, and two showed no change. The Popularity cluster reflects a participant's perception of his or her popularity and ability to make friends. Four participants showed no change in their scores, two decreased by one to three points, and three increased by three to five points. Lastly, the Happiness and Satisfaction cluster reflects the participant's general satisfaction with life and sense of being a happy person. Six of the participants increased their scores by one to two points, and three showed no change.

Table 1

TONI

Participant	Pretest			Posttest		
	Raw Score	TONI Quotient	%ile Rank	Raw Score	TONI Quotient	%ile Rank
1	1	<58	<0.3	2	<58	<0.3
2	3	<58	<0.3	3	<58	<0.3
3	4	<57	<0.2	6	<57	<0.2
4	3	<58	<0.3	6	<59	<0.3
5	2	<58	<0.3	5	<58	<0.3
6	0	<58	<0.3	2	<58	<0.3
7	6	<59	<0.3	5	<58	<0.3
8	2	<57	<0.2	2	<57	<0.2
9	8	<61	<0.5	10	<64	<0.8

Mean=3.22

Mean=4.56

SD=2.49

SD=2.56

Table 2

PIAT Reading Recognition

Participant	Pretest			Posttest		
	Raw Score	Age Equiv.	Grade Equiv.	Raw Score	Age Equiv.	Grade Equiv.
1	5	<5-6	K(<0.1)	11	5-6	0.5
2	18	6-4	1.3	20	6-7	1.4
3	19	6-6	1.3	20	6-7	1.4
4	17	6-3	1.2	16	6-2	1.1
5	13	5-10	0.3	6	<5-6	K(<0.1)
6	5	<5-6	K(<0.1)	4	<5-6	K(<0.1)
7	17	6-3	1.2	17	6-3	1.2
8	8	<5-6	0.2	5	<5-6	K(<0.1)
9	22	6-11	1.6	21	6-9	1.5

Mean=13.78

Mean=13.33

SD=6.34

SD=6.93

Table 3

Piers-Harris Pretest

Participant	1	2	3	4	5	6	7	8	9
Score	53.3	54.4	74.9	63.6	73.9	44.1	75.9	45.1	74.9
Percentile	49	52	98	79	96	27	99	29	98
Clusters									
Behavior	8	13	15	14	15	8	14	6	15
Intellectual and School Status	11.7	11.7	15.9	15.9	17.0	10.6	15.9	10.6	15.9
Physical Appearance and Attributes	13	11	12	13	12	8	13	11	13
Anxiety	6.5	6.5	12.9	6.5	11.8	1.0	12.9	3.2	14.0
Popularity	6	2	10	7	10	3	11	5	11
Happiness and Satisfaction	9	9	9	8	8	7	10	7	8

Mean=62.2

SD=13.27

Table 4

Piers-Harris Posttest

Participant	1	2	3	4	5	6	7	8	9
Score	59.3	64.6	74.9	72.8	67.7	56.4	72.8	48.2	72.8
Percentile	66	82	98	96	89	57	96	36	96
Clusters									
Behavior	13	16	15	16	16	14	16	11	16
Intellectual and School Status	12.8	15.9	14.9	17.0	15.9	12.8	14.9	9.66	14.9
Physical Appearance and Attributes	13	12	13	13	11	8	12	10	12
Anxiety	5.4	7.5	14.0	11.8	10.8	8.6	14.0	3.2	14.0
Popularity	6	7	10	10	7	7	11	4	11
Happiness and Satisfaction	9	9	10	10	9	9	10	8	10

Mean=65.3

SD=9.37

Section Three- t-tests

In this section, the t-tests are presented. T-tests were performed on the results of each standardized test to determine if significant changes had occurred. An alpha level of .05 was used for all statistical tests. For the TONI, the test was performed to determine if changes had occurred in the group's nonverbal intelligence. The calculated t ratio was -3.18, which was less than the table t ratio of 2.306. For the PIAT Reading Recognition test, the calculated t ratio was 0.43, which was less than the table t ratio of 2.306. For the Piers-Harris, the calculated t ratio was -1.45, which was less than the table t ratio of 2.306. For each test, $df=8$.

Summary

These results indicate that there was no significant statistical change in either literacy level or self-concept of these participants. Therefore, the hypothesis must be rejected and the null hypothesis, that there would be no effect on the self-concept of moderately mentally handicapped adults after using the B-S-B reading system for literacy training, must be accepted. These findings indicate specific recommendations for literacy instruction of mentally handicapped adults. The findings also hold implications for further research into the self-concept of mentally handicapped adults. These will be discussed in Chapter Five.

CHAPTER FIVE: SUMMARY, DISCUSSION AND IMPLICATIONS

Introduction

Increasing integration of mentally handicapped adults is occurring in today's society, giving continued impetus to the finding of effective reading systems. More attention is being paid to the role of self-concept in learners, especially in adult literacy programs.

Two main streams of thought emerged from the review of literature on literacy training for mentally handicapped individuals. One looks at teaching reading as a series of subskills, with considerable research conducted as to its effectiveness. Numerous research documents the fact that mentally handicapped individuals are able to learn, and will perform better if more concrete methods, or ones that tap more than two sense modalities, are used (Barudin & Hourcade, 1990; Gottardo & Rubin, 1991; Hoogeveen et al., 1987; House, Hanley, & Magid, 1980; Sensenig et al., 1989). They used pictures, objects, and sign language. Subskills such as letter-sound correspondence were taught but often these are not generalized by mentally handicapped learners.

A second stream of thought is that of using language in its entirety to enhance literacy. Proponents of this view tend to be found in the adult literacy field, although there are some who encourage its use, especially with special needs children, for example, Elley (1989), and Katims (1991).

The B-S-B reading system incorporates elements of both streams in that it teaches subskills, such as letter-sound correspondence, but also uses story as a medium. Stoodt as cited in Dechant (1991), believes that "children are more ready to read when they possess a large speaking and listening vocabulary and when they have a sense of story" (p. 40).

The B-S-B reading system is based on the principle that learning in children centres on play behaviour, therefore reading becomes a game. The greatest game of them all is to learn (EPIEgram, 1986). Connors (1989) says that the B-S-B system provides a faster entry into the reading experience.

Educators believe strongly that motivation and a positive self-concept are important, even necessary, ingredients in acquiring literacy. This view is supported by Cantor (1992), Cothorn and Collins (1992), Dechant (1991), Frager (1993), Gruen et al., (1974), Hatt and Nichols, (1992), and Kearns (1992). Purkey and Novak (1984) have developed an entire approach to teaching, invitational education, that centres on the importance of a positive self-concept of the learner as well as the learning environment. Experience can sometimes serve as a barrier to learning (Cantor, 1992), especially for mentally handicapped and adult illiterate learners who are considered to have experienced more failure than those of normal intelligence. This, in turn, may lead to various avoidance behaviours when it comes to reading (Dechant, 1991; Cothorn & Collins, 1992). Self-concept is believed to be fairly stable and hierarchical (Kearns, 1992; Purkey & Novak, 1984) which can make teaching learners who view themselves as nonreaders more of a challenge.

In this study, support for the hypothesis that using a proven reading intervention to increase the level of literacy for moderately mentally handicapped adults, which would in turn improve their self-concepts, was not found. No statistically significant changes were found in either literacy level or self-concept after using the B-S-B reading system for a period of 13 weeks. A discussion of this will follow, as will implications for theory,

further research, and practice.

Literacy

Even though many moderately mentally handicapped adults have only the very basics of alphabetic knowledge, or logographic reading, they will take part in literacy classes if given the opportunity. Why is this? Literacy can bring an explosion of knowledge to an individual. Not only does it unlock the meaning of the printed symbol, but it also leads to understanding of concepts and ideas. Fuller (1975) found that it had such an impact on her severely mentally handicapped students because it opened up the real world for them. It made things more comprehensible. The participants in her study (1977) were considered rejects at the institution where they resided- they had social problems, low IQs, marred physical appearance, and impaired speech. However, even early in the study they explained that, if they could learn to read, it would affect who they were. As they became better at verbalizing when their reading skills improved, they explained that they "saw reading as an entrance ticket into the world of people. It would mean that they would stop being zoological specimens" (Fuller, 1977, p.83). Changes in the learner made possible different types of interactions with the staff, which then caused different treatment to the students (Fuller, 1977).

Lower functioning individuals should have the opportunity to experience literacy. Van Ellen, Arkell, and van Etten, as cited in Barudin and Hourcade (1990), state that at this time professionals are not able to accurately identify potential abilities of students with severe mental handicaps. They caution specifically against the imposition of artificial

instructional ceilings due to the inability of examiners to accurately assess these students.

In addition, the increasingly enhanced efficacy of contemporary instructional programming is still another reason to include academic skills training including the ability to read novel words, in curricula for severely mentally handicapped individuals.

EPIEgram (1986) quotes Fuller as saying that the lack of correlation between IQ and reading comprehension in severe mentally handicapped cases can be explained by the fact that abstract thought is not a reflection of intelligence. Those who are advocates of brain-compatibility learning believe that insight serves as an anchor of information and facilitates transfer of learning. Stanovich (1991) questions withholding educational training from children with low IQs or listening comprehension when it is known that the poor reading may be a cause of the same. He believes that because of the existence of the Matthews effect, the possibility must be allowed for that poor listening comprehension or verbal intelligence could be enhanced by better reading.

Strategies are used by mentally handicapped learners in their reading. Participants in this study demonstrated this in the posttest PIAT Reading Recognition subtest. All through the B-S-B lessons, the students were prompted for letter sounds. In the PIAT subtest, only alphabetic letter names were acceptable, but the students sounded out the letters. In addition to showing strategy use, it could have impacted negatively on the results of their tests.

Story

In this study, most of the participants enjoyed the story books. They liked to read about the VOOROOS and the bad things they did. The lessons did not seem to be a chore but a fun activity for the students.

To Fuller (n.d.), the concepts of good and evil in the stories served as powerful models for the students. One learner understood from the stories that, when one becomes a good guy, one ceases to be helpless, and can have more control over one's surroundings. Again, the participants in this study did not appear to fully appreciate the moral overtones of the stories, but were too busy enjoying their ability to sound out words.

Ball-Stick-Bird

The B-S-B reading system combines various techniques that are recommended by reading theorists and researchers. It uses more than two sense modalities, as recommended by Giddings (1986). It forces the reader's attention to the orthographic features of the words, to the direction of the letters in the words, and to the letter-sound correspondence, as Dechant (1991) stated needs to be done. It uses whole text to build on what the reader already knows, which can then build confidence and self-esteem (Soifer et al., 1990). The learner is an active participant in the process.

Use of the B-S-B reading system can lead to a generalization of skills on the part of the reader, which makes the teaching much easier (Barudin & Hourcade, 1990).

Elley (1989) says that new vocabulary should be supported by a helpful verbal or pictorial context, and with more than one exposure to a word. This is the case with the B-

S-B system; a new word may be repeated as many as five times on a page. The students in this study were not at all intimidated by learning new words like ROCKET OR ELECTRIC.

The B-S-B system uses developmental linguistics, teaching nouns and then verbs, with other types of words following. In House, Hanley, and Magid's study (1980) of using logographs with TMR adults, they taught prepositions first, then nouns and verbs. Seventy percent of the errors made were on prepositions; the participants picked objects or nouns first, then verbs, and prepositions last. This supports the use of developmental linguistics with a mentally handicapped population.

In teaching with the B-S-B reading system, principles of invitational education are used. It is expected that the student will learn; the books are set up so that some success is apparent at first, and letters are learned the first day. Lessons were given individually and in private. No charts or stickers were used to make the learner's progress public. Lessons and progress were kept confidential. The instructor took time to establish personal relationships with each participant. The results were enjoyment of the interaction on the part of each learner.

Self-Concept

The testing of self-concept in mentally handicapped adults is an area which is still under investigation. There was some concern on the part of this author about the ability of all the participants to understand what was being asked, and consequent random answers if they did not. Benson and Ives (1992) noted that "individuals with moderate-severe

retardation may be less cognizant of their limitations, less frustrated by them, and less able to identify and report angry feelings" (p.175). An unexpected result of the Piers-Harris testing was the high degree of self-concept reported by the group. The literature reviewed led one to believe that illiterate (mostly) adults with stigma attached to them would likely report low self-concept. The normal range of self-concept for the Piers-Harris scale is from the 31st to the 70th percentile. The pretest range was from the 27th to the 99th percentile, with five of the scores being over the 70th percentile (79, 96, 98, 98, 99); the posttest range was from the 36th to the 98th percentile, with six of the scores being above the 70th percentile (82, 89, 3-96s, 98). These results agree with Piers (1984) who found that intelligence is only slightly associated with global self-esteem in studies that investigated the relationship between self-concept and IQ. This is contrary to Leahy, Balla, and Zigler (1982) who found that, with respect to self-image, people with higher IQs had a more positive self-image.

Turner, as cited in Zetlin et al. (1981), wonders whether mentally handicapped persons may fabricate things to make them appear more normal or interesting, which then leads to increased social desirability responses on self-report measures. Zetlin et al. (1981) believe that dependent persons must typically be socially conforming as a condition of their dependency; otherwise powerful others can or may withhold needed and valued resources. This could partially explain the inflated results in this study.

Generally, this group appeared to be satisfied with life and be happy. Their pretest scores were in the 39th to 90th percentile, and their posttest scores were in the 56th to 90th percentile. Six of the nine participants increased their scores by one or two points.

They were also satisfied with their physical appearance and attributes. Pre and post test scores ranged from the 48th to the 97th percentile. This may be part of the reason that there were no significant changes in self-concept over the course of the study.

The least change occurred in the Popularity cluster. Range was from the 4th to 86th percentile and 9th to 86th percentile pre and posttest. Four of the participants experienced no change.

The time spent during this study seemed to decrease their anxiety levels, as reported by the Behaviour cluster. There was a complete range there, from the 1st to the 99th percentile. One person went from the 1st to the 47th percentile. Five participants increased their scores. Perhaps the 1:1 interaction was the positive effect here, as there was very little interaction between the staff and the clients at the workshop.

The Behaviour cluster scores were more difficult to interpret. Low scores reflect acknowledged behavioral difficulties. Three of the participants with low scores would have been perceived as behaviour problems by the staff. The high scores of the others could either be a lack of behavioral problems or an attempt to deny such behaviors.

The Intellectual and School Status cluster was the only one in which each participant reported change. Pretest scores ranged from the 38th to the 98th percentile; posttest scores from the 24th to the 98th percentile. With the exception of one person, scores varied by only one point in either direction. The one individual went from a raw score of 11.7 to 15.9 (out of 17); she had exhibited a great deal of success in her reading and this score could have been a reflection of this. Of interest was the fact that all of the participants said that they were good in school work; they all responded that they did not

hate school on the pretest, but three said they did on the posttest.

Perhaps the theory that self-concept is dependent to some extent on referent groups (Piers, 1984) comes into play here. These nine participants work in a setting where there are various types of various behaviour problems. Therefore they could perceive themselves as models of good behaviour (most of them were). The workshop setting was not one with much print in it. Many of the contract jobs were designed with aids to assist those who could not read or count. There were not posters or signs on the walls. Therefore it is possible that they could perceive themselves as good students--after all, who were they being compared to?

This group did not appear to have, in their reporting, the feelings of isolation and stigmatization that Wolfensberger (1983) and Zigler and Burack (1989) refer to. One mitigating factor could be that only two of the nine participants had been institutionalized as young children. At least three of the participants still lived at home. Stainback et al. (1994) may be correct in their belief that inside all people are normal and need to be able to develop a healthy sense of who they are through choices of talents, friendships, and interests. For this group of people, coming to terms with a handicapped identity did not appear to be a problem, as Szivos and Griffiths (1990) suggest it is.

Can mentally handicapped persons be expected to accurately report how they feel? Benson and Ivins (1992) note that there is a lack of instrumentation for assessing the emotional states of the mentally handicapped population. They think that the ones for non-mentally handicapped children are too complex in their response formats and have a difficult vocabulary. Nunnally, as cited in Widaman et al. (1992), notes that scales

developed for the general population often have substantially lower reliabilities when used with individuals who are outside the norm.

Zetlin and Turner (1988) used a semi-projective sentence completion technique so that the participants could make their own statements. They found that too many tests rely on conventional assumptions about personal attributes and roles. The responses indicated that mentally handicapped persons reflected prosocial aspirations, were dependent upon others, focused on interpersonal rather than interpsychic dimensions, and based their self-description on the present, not the past or future.

In summary, the entire process of using self-concept scales that are currently in existence is questionable as to the validity of the results.

Implications for Research

Further research needs to be conducted in order to learn more about the linguistic skills and abilities of children and adolescents with mental handicaps; especially of interest is when these skills begin to develop (Gottardo & Rubin, 1991). Are these individuals more ready to read as adolescents or adults than as children?

The effect that affective variables may have on teaching literacy skills to mentally handicapped persons should be examined. Most of the participants in this study were quite eager to learn to read and were proud of their acquired skills. Two of them seemed unwilling to let go of their perceptions of themselves as non-readers.

The results of teaching reading as a series of subskills as compared to using language in its entirety need to be examined with this population.

Larger groups of subjects need to be used for research of reading. Connors (1992) found that most studies involve seven or less subjects in their examination of language skills. This study began with 12 participants and finished with nine.

Zetlin and Turner (1988) discovered that many of the domains they found in open-ended self-descriptions of mentally handicapped adults are not found in current self-concept scales. More research is needed that is directed specifically at the self-concept of adults of varying degrees of intellectual functioning. The format and vocabulary needs to be such that it is comprehensible to the population which it proposes to serve. Perhaps one way to approach this is with open-ended, descriptive statements. Benson and Ivins (1992) stated that there is a need to develop valid measures for clinical and research purposes. Many of the tests used to measure self-concept have not been standardized for the mentally handicapped population.

Implications for Theory

Mentally handicapped adults should be considered life-long learners even more than "normal" people. Farrell and Elkins (1995) say that the "learn early or never" (p. 25) attitude that is so prevalent in society is negative for children who begin to acquire literacy concepts at a time that their education is switching to activities of daily living. Their readiness for academic instruction may not occur until adolescence or adulthood. Accordingly, books and curricula should be developed at an adult level but with suitable vocabulary.

Learning things as a whole rather than as parts may be more effective for the

population of adult mentally handicapped persons. If this is so, it may require a restructuring of curriculum.

Thinking skills should be taught regularly. Using a system such as the Ball-Stick-Bird will produce cognitive changes. This then may mean a rethinking of expectations of those with low Iqs.

The entire area of self-concept of mentally handicapped individuals needs to be re-examined. Our research showed that these individuals did not think poorly of themselves, but rather were quite comfortable with who they were. It may be that their self-concept is tied more closely to their referent group. As well, the environment that the individual was raised in (institution, foster home, natural parents) may be a large factor. Their ideas of how they think about themselves, rather than society's perception of it, need to be taken into account.

Implications for Practice

Opportunities for literacy need to be made available to all individuals with mental handicaps. Katims (1991) advises that special needs children and mentally handicapped adults should be read aloud to. He believes that being read to is necessary for literacy development of the young child. One way to assist literacy is to provide good print materials which will help to build concepts about print, such as the direction of words and print on a page, and the fact that the written symbols represent the spoken word. Very young children, and those with intellectual impairment, can then grasp the notion of reading and writing with appropriate opportunity and structure.

Cothern and Collins (1992) agree that the home environment has an effect on the students' reading attitude development. They believe that parents' interaction will have a positive influence.

In the school setting, language should be used in its entirety. Using stories as a major teaching tool will build on what the students already know- the teacher can add and expand from there. Stanovich (1991) says that we learn to read by reading. It would be wise, therefore, to give the students as much practice as possible. One way of doing this is to have the students dictate their stories to the teacher, who can then write them down and have the students read them back. Stanovich (1991) also believes that practice in reading may improve an individual's listening comprehension and/or verbal intelligence.

Research by various authors (Barudin & Hourcade, 1990; Gottardo & Rubin, 1991; Hoogeveen et al., 1987; House, Hanley, & Magid, 1980; Sensenig et al., 1989) suggests that as many sense modalities as possible be used in teaching reading skills.

Mentally handicapped students should be trained in the use of learning strategies. The method used in the B-S-B system was seen to be used in other than the teaching situation, showing that these research participants are capable of using learning strategies.

Connors (1992) postulates that giving mentally handicapped persons the ability to sound out words means that they could read new words in their environment and read for pleasure. For those living in the community, this would open new horizons and allow for greater independence.

Our research did not reveal poor self-concepts in the participants. In view of the literature on adults who are not literate, and who suffer from self-esteem because of it,

some suggestions are offered.

In order to prevent the development of poor self-concept in mentally handicapped adults, it would be advisable to focus on their strengths. Teachers need to facilitate successful learning experiences by getting off to a fast start and giving students something to learn on the first day of classes (Purkey & Novak, 1984). Instructors need to have, and communicate, positive expectations to their students (Scully & Johnston, 1991). Learners can participate in decisions regarding the amount, the speed, and the evaluation of their learning (Purkey & Novak, 1984). This gives a sense of ownership to the individual (Kearns, 1992).

It is important to discuss, on a realistic level, the implications of the individual's disability. Szivos and Griffiths (1990) say that opportunities for persons to work through the personal significance of their disability and achieve positive self-acceptance should be provided. Opportunities for persons with mental handicaps that promote autonomy and self-determination will assist them in achieving a well-balanced sense of self.

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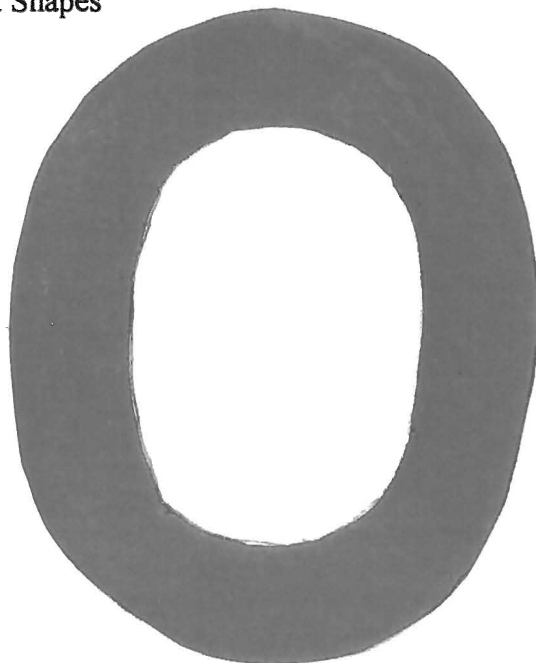
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APPENDIX A

Ball-Stick-Bird Shapes



Ball



Half a Ball



Bird



Big Stick



Little Stick



APPENDIX B

From a review of the data, several patterns emerged. These were in comprehension, words that were the easiest to learn, words that were the hardest to learn, participant response to the lessons, and the number of lessons given before independent word reading occurred. Lastly, patterns emerged in the students' progress from giving sounds to putting words together to reading phrases, and the use of strategies.

Generally, comprehension of the story was quite good. Kate had 11 correct answers to the comprehension questions, six wrong answers, and five that she either did not know or did not respond to. As the lessons went on, Kate was correct more of the time. As well, if she did not know the answer, she would say so instead of making one up. Julie gave 28 correct and four incorrect answers to the questions. Usually her responses were very literal. Susan gave 20 correct and five incorrect answers. At first, she did not understand that the VOOROOS were the bad guys in the story. Lynne appeared to have a fairly good understanding of the story. She gave 18 correct and three incorrect answers. Sandra gave 15 correct, three incorrect, and four 'don't know' responses. Near the end of the study, she gave shrugs for answers. Tonya's comprehension of the story was quite difficult to gauge. She gave two correct, five incorrect, and 14 'unknown' responses. Sometimes she would point to the pictures, but it was unclear if she understood the questioning technique at all. Lorrie would sit and think before she would respond to the question. She gave 23 correct and four incorrect answers. Kent gave eight correct and four incorrect answers, and did not respond to 11 of the questions. He understood that

the VOOROOS were bad and that the concept of being unplugged meant that VAD was unable to function; at times it was difficult to get him to pay attention to the story. John gave 25 correct answers, seven incorrect ones, and no response to two questions. Sometimes he needed to have the question repeated before he was able to focus on giving an answer.

Some words were easier to learn than others for the students. Three of the students did not get to word reading. Five of the remaining six learned CAT. The names of the characters, MIMI, HAPPY CAT DICK, VAD, and VOOROOS were learned easily. Is and A were two words that were learned by most of them.

Words that were difficult to learn were those that had I in them, especially HIS. Three of the students had difficulty with that letter. Kate in particular did not even see that letter when we were sounding out words. Julie often gave the 'l' sound for it, and Lynne had trouble with KICK and HIS. John consistently interchanged OFF and OF, ON and NO, and HAS and HIS. Lorrie did not appear to have any special difficulties and the other three did not learn to read any words independently.

There were different responses to the reading lessons. Julie, Susan, Lorrie, and John always read, and would have had longer lessons if time allowed. The researcher always read to Tonya because of her poor articulation. Sandra and Kent were read to after the third and fifth lessons respectively because they seemed unhappy with their inability to give the correct sounds regularly. Katie and Lynne were sometimes read to and some of the time did the reading. They were given choices as to the timing.

There was not a big variation in the number of lessons it took for the students to

begin reading words independently. Of the six who achieved this, it happened at the second, third, fourth (for two students), and eleventh lessons.

A progression occurred from giving sounds to reading individual words to reading phrases. Sandra, Tonya, and Kent did not progress very far with giving sounds correctly. Kate needed assistance with giving sounds all through the lessons; she did not get to the stage of being able to put the sounds together to form words. However, by Book Two she was giving the sounds of V, A, and S correctly and consistently. From the second session, Susan seemed to grasp the procedure. She was able to sound words out correctly from the beginning and was able to put most words together. By the seventh lesson, she would sound a word out, then read it. By the eleventh lesson, she was reading phrases such as GO GO VOOROOS, and A VOOROO IS. Julie was sounding out words and putting them together with less help by the fifteenth lesson. By the thirteenth lesson, she was reading phrases such as HAPPY CAT DICK. In Book Two, she had all the sounds correct and would sound out all words that she did not know and then read them. Lynne exhibited a great deal of improvement as well. By the fourth lesson, she was reading words- A, CAT, DICK. By the seventh lesson, she was reading DICK IS A HAPPY CAT and HAPPY CAT DICK independently. As the lessons progressed, she was able to give the correct sounds more consistently. Lorrie was consistent in the correctness of her sounds. By the fourth lesson, she was reading individual words-A, CAT, VAD. By the fifth lesson, she had progressed to reading HAPPY CAT and continued on. At first, John needed help with the sounds on a regular basis, even though he was able to read words such as IT, VAD, POT, CAT, and HOT by the third lesson. By the sixth lesson, he was

reading phrases such as IS A HAPPY CAT. By the last couple lessons, he was much better with the sounds and was reading NO METEORS HIT independently and consistently.

Various strategies were used by the students throughout the research. John would turn a page back to look at a word he had read correctly there. He would also note that words were 'almost the same' as he would look at SPOT and SPOTS. Lorrie and Lynne would pick out all the words that were the same on a page, for example, all the GOs. Susan would look at a word that she knew, say "I 'member that word" and read it. A commonly used word strategy was to sound out the first part of a word, then just read it; for example, sound out PLAN, look at the rest of the word, and read PLANET. Julie, John, and Lynne would sometimes spell out a word before they sounded it out. Lorrie, by the twelfth lesson, was sounding out words silently, then reading them aloud.